

**Based On New Pattern**

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# NUMBER SERIES

## 150+ QUESTION WITH DETAILED SOLUTION

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**32, ?, 1024, 2048, 2048**

1. 324
2. 256
3. 224
4. 326
5. 274

**Answer – 2. 256****Explanation :**

$$\begin{aligned}32 * 8 &= 256 \\256 * 4 &= 1024 \\1024 * 2 &= 2048\end{aligned}$$

**• 9, 5, 6, 10.5, 23 ?**

1. 50
2. 65
3. 70
4. 55
5. 60

**Answer – 5. 60****Explanation :**

$$\begin{aligned}9 * 0.5 + 0.5 &= 5 \\5 * 1 + 1 &= 6 \\6 * 1.5 + 1.5 &= 10.5 \\10.5 * 2 + 2 &= 23 \\23 * 2.5 + 2.5 &= 60\end{aligned}$$

**• 17, 98, 26, ?, 35, 80**

1. 79
2. 69
3. 89
4. 59
5. 49

**Answer – 3. 89****Explanation :**

$$\begin{aligned}26 - 17 &= 9; 35 - 26 = 9 \\98 - 9 &= 89\end{aligned}$$

**• 2, 17, 89, 359, 1079, ?**

1. 2143
2. 2152
3. 2169
4. 2159
5. 2148

**Answer – 4. 2159****Explanation :**

$$\begin{aligned}2 * 6 + 5 &= 17 \\17 * 5 + 4 &= 89 \\89 * 4 + 3 &= 359 \\359 * 3 + 2 &= 1079 \\1079 * 2 + 1 &= 2159\end{aligned}$$

**• 7, 4.5 ,5.5, 12, 49, ?**

- 1.393
- 2.351
- 3.362
- 4.375
- 5.364

**Answer – 1.393****Explanation :**

$$\begin{aligned}7 \times 0.5 + 1 &= 4.5. \\4.5 \times 1 + 1 &= 5.5. \\5.5 \times 2 + 1 &= 12. \\12 \times 4 + 1 &= 49. \\49 \times 8 + 1 &= 393.\end{aligned}$$

**• 7, 7, 13, 37, 97, ?**

1. 237
2. 247
3. 217
4. 227
5. 257

**Answer – 3. 217****Explanation :**

$$\begin{aligned}7 + 1^3 - 1 &= 7 \\7 + 2^3 - 2 &= 13 \\13 + 3^3 - 3 &= 37\end{aligned}$$

**• 1, 20, 58, 134, 286, ?**

- 1.600
- 2.590
- 3.580
- 4.570
- 5.560

**Answer – 2.590****Explanation :**

$$\begin{aligned}1 * 2 + 18 &= 20 \\20 * 2 + 18 &= 58\end{aligned}$$

$$58 * 2 + 18 = 134$$

$$134 * 2 + 18 = 286$$

- 3, 5, 15, 45, 113, ?

1.253

2.263

3.243

4.651

5.655

Answer – 3.243

**Explanation :**

$$3 * 1^3 + 1 = 5$$

$$5 * 2^3 + 2 = 15$$

$$15 * 3^3 + 3 = 45$$

$$45 * 4^3 + 4 = 113$$

- 3.25, 6.5, 19.5, 78, 390, ?

1.2140

2.2350

3.2670

4.2340

5.2250

Answer – 4.2340

**Explanation :**

$$3.25 * 2 = 6.5$$

$$6.5 * 3 = 19.5$$

$$19.5 * 4 = 78$$

- 68, 117, 61, 124, 54, ?

1.141

2.121

3.151

4.131

5.111

Answer – 4.131

**Explanation :**

$$68 - 7 = 61; 61 - 7 = 54$$

$$124 + 7 = 131$$

•

- 4, 5, 6, 14, ?, 100.5

1. 32.5

2. 47.5

3. 67.5

$$4. 37.5$$

$$5. 27.5$$

Answer – 1. 32.5

**Explanation :**

$$4 * 1 + 1 = 5$$

$$5 * 1.5 - 1.5 = 6$$

$$6 * 2 + 2 = 14$$

$$14 * 2.5 - 2.5 = 32.5$$

$$32.5 * 3 + 3 = 100.5$$

- 8 4 4 8 32, ?

1.354

2.384

3.294

4.234

5.256

Answer – 5.256

**Explanation :**

$$8 * 0.5 = 4$$

$$4 * 1 = 4$$

$$4 * 2 = 8$$

$$8 * 4 = 32$$

$$32 * 8 = 256$$

- 2, 2, 7, ?, 87, 342

1.21

2.26

3.23

4.24

5.22

Answer – 5.22

**Explanation :**

$$2 + 1^2 - 1 = 2$$

$$2 + 2^2 + 1 = 7$$

$$7 + 4^2 - 1 = 22$$

- 6, 8, 8, 22, ?, 151

1.43

2.42

3.44

4.47

5.48

**Answer – 4.47**

**Explanation :**

$$\begin{aligned}6 * 1 + 2 &= 8 \\8 * 1.5 - 4 &= 8 \\8 * 2 + 6 &= 22 \\22 * 2.5 - 8 &= 47 \\47 * 3 + 10 &= 151\end{aligned}$$

- 4, ?, 14, 40, 88, 170

1.9  
2.5  
3.6  
4.7  
5.2

**Answer – 3.6**

**Explanation :**

$$\begin{aligned}4 + 1^2 + 1 &= 6 \\6 + 3^2 - 1 &= 14 \\14 + 5^2 + 1 &= 40 \dots\dots\dots\end{aligned}$$

- 6, 6, 7, ?, 91, 463

1.33  
2.43  
3.38  
4.25  
5.44

**Answer – 4.25**

**Explanation :**

$$\begin{aligned}6 * 1 - 1 + 1 &= 6 \\6 * 2 - 2 - 3 &= 7 \\7 * 3 - 1 + 5 &= 25\end{aligned}$$

- 2, 5, 17, 50, 122, ?

1.252  
2.258  
3.257  
4.225  
5.242

**Answer – 3.257**

**Explanation :**

$$\begin{aligned}2 + 1^3 + 2 &= 5 \\5 + 2^3 + 4 &= 17 \\17 + 3^3 + 6 &= 50 \\50 + 4^3 + 8 &= 122\end{aligned}$$

- 2, 9, 39, 161, ?, 2613

1.675  
2.670  
3.665  
4.651  
5.655

**Answer – 4.651**

**Explanation :**

$$\begin{aligned}2 * 4 + 1 &= 9 \\9 * 4 + 3 &= 39 \\39 * 4 + 5 &= 161 \\161 * 4 + 7 &= 651 \\651 * 4 + 9 &= 2613\end{aligned}$$

- 5, ?, 20, 34, 76, 142

1.4  
2.5  
3.7  
4.8  
5.9

**Answer – 4.8**

**Explanation :**

$$\begin{aligned}5 * 2 - 2 &= 8 \\8 * 2 + 4 &= 20 \\20 * 2 - 6 &= 34\end{aligned}$$

- 5, 6, 8, 30, 136, ?

1.645  
2.680  
3.650  
4.690  
5.620

**Answer – 1.645**

**Explanation :**

$$\begin{aligned}5 * 1 + 1 &= 6 \\6 * 2 - 2 &= 10 \\10 * 3 + 3 &= 33 \\33 * 4 - 4 &= 128 \\128 * 5 + 5 &= 645\end{aligned}$$

- 

- 4, 4, 6, 12, 30, ?

1. 97  
2. 92

3. 95  
4. 98  
5. 90

**Answer – 5. 90**

**Explanation :**  
 $4 * 1 = 4$   
 $4 * 1.5 = 6$   
 $6 * 2 = 12$   
 $12 * 2.5 = 30$   
 $30 * 3 = 90$

• **10 5 5 10 40 ?**

1.350  
2.320  
3.360  
4.370  
5.380

**Answer – 2.320**

**Explanation :**  
 $10 * 0.5 = 5$   
 $5 * 1 = 5$   
 $5 * 2 = 10$   
 $10 * 4 = 40$   
 $40 * 8 = 320$

• **3, 5, ?, 27, 92, 349**

1.12  
2.18  
3.15  
4.10  
5.11

**Answer – 4.10**

**Explanation :**  
 $3 + 1^2 + 1 = 5$   
 $5 + 2^2 + 1 = 10$   
 $10 + 4^2 + 1 = 27$

• **1, 2, 6, 17, ?, 157.5**

1.40.5  
2.42.5  
3.49.5  
4.51.5  
5.50.5

**Answer – 3.49.5**

**Explanation :**

$$\begin{aligned}1 * 1 + 1 &= 2 \\2 * 1.5 + 3 &= 6 \\6 * 2 + 5 &= 17 \\17 * 2.5 + 7 &= 49.5 \\49.5 * 3 + 9 &= 157.5\end{aligned}$$

• **7, ?, 19, 45, 95, 177**

1.8  
2.5  
3.6  
4.7  
5.9

**Answer – 5.9**

**Explanation :**  
 $7 + 1^2 + 1 = 9$   
 $9 + 3^2 + 1 = 19$   
 $19 + 5^2 + 1 = 45 \dots\dots$

• **9, 8, 15, ?, 175, 874**

1.42  
2.24  
3.38  
4.44  
5.14

**Answer – 4.44**

**Explanation :**  
 $9 * 1 - 1 = 8$   
 $8 * 2 - 1 = 15$   
 $15 * 3 - 1 = 44$

• **2, 2, 12, 36, 104, ?**

1.232  
2.221  
3.223  
4.224  
5.242

**Answer – 4.224**

**Explanation :**  
 $2 + 1^3 - 1 = 2$   
 $2 + 2^3 + 2 = 12$   
 $12 + 3^3 - 3 = 36$   
 $36 + 4^3 + 4 = 104$

- 4, 15, 63, 247, 995, ?

1.3975  
2.3973  
3.3965  
4.3971  
5.3955

Answer – 4.3971

**Explanation :**

$$\begin{aligned}4 * 4 - 1 &= 15 \\15 * 4 + 3 &= 63 \\63 * 4 - 5 &= 247 \\247 * 4 + 7 &= 995 \\995 * 4 - 9 &= 3971\end{aligned}$$

- 3, ?, 7, 9, 11, 13

1.6  
2.5  
3.7  
4.8  
5.9

Answer – 2.5

**Explanation :**

$$\begin{aligned}3*2 - 1 &= 5 \\5*2 - 3 &= 7 \\7*2 - 5 &= 9\end{aligned}$$

- 6, 8, 12, 42, 160, ?

1.870  
2.840  
3.850  
4.810  
5.820

Answer – 4.810

**Explanation :**

$$\begin{aligned}6 * 1 + 2 &= 8 \\8 * 2 - 4 &= 12 \\12 * 3 + 6 &= 42 \\42 * 4 - 8 &= 160 \\160 * 5 + 10 &= 810\end{aligned}$$

- 

- 8, 9, 15, 32, ?, 250.5

1. 82.5  
2. 47.5

3. 62.5  
4. 37.5  
5. 64.5

Answer – 1. 82.5

**Explanation :**

$$\begin{aligned}8 * 1 + 1 &= 9 \\9 * 1.5 + 1.5 &= 15 \\15 * 2 + 2 &= 32 \\32 * 2.5 + 2.5 &= 82.5 \\82.5 * 3 + 3 &= 250.5\end{aligned}$$

- 12 7 9 22 96 ?

1.754  
2.784  
3.794  
4.734  
5.744

Answer – 2.784

**Explanation :**

$$\begin{aligned}12 * 0.5 + 1 &= 7 \\7 * 1 + 2 &= 9 \\9 * 2 + 4 &= 22 \\22 * 4 + 8 &= 96 \\96 * 8 + 16 &= 784\end{aligned}$$

- 2, 4, 7, ?, 87, 344

1.38  
2.24  
3.56  
4.44  
5.62

Answer – 2.24

**Explanation :**

$$\begin{aligned}2 + 1^2 + 1 &= 4 \\4 + 2^2 - 1 &= 7 \\7 + 4^2 + 1 &= 24 \\24 + 8^2 - 1 &= 87 \\87 + 16^2 + 1 &= 344\end{aligned}$$

- 6, 4, 10, 14, 43, ?

1.119  
2.127  
3.114

4.141

5.132

**Answer – 1.119****Explanation :**

$$6 * 1 - 2 = 4$$

$$4 * 1.5 + 4 = 10$$

$$10 * 2 - 6 = 14$$

$$14 * 2.5 + 8 = 43$$

$$43 * 3 - 10 = 119$$

- **4, ?, 14, 40, 88, 170**

1.9

2.5

3.6

4.7

5.2

**Answer – 3.6****Explanation :**

$$4 + 1^2 + 1 = 6$$

$$6 + 3^2 - 1 = 14$$

$$14 + 5^2 + 1 = 40$$

$$40 + 7^2 - 1 = 88$$

$$88 + 9^2 + 1 = 170$$

- **6, 6, 7, ?, 91, 463**

1.33

2.43

3.38

4.25

5.44

**Answer – 4.25****Explanation :**

$$6*1 - 1 + 1 = 6$$

$$6*2 - 2 - 3 = 7$$

$$7*3 - 1 + 5 = 25$$

$$25*4 - 2 - 7 = 91$$

$$91*5 - 1 + 9 = 463$$

- **2, 5, 9, 42, 98, ?**

1.233

2.218

3.221

4.225

5.242

**Answer – 1.233****Explanation :**

$$2 + 1^3 + 2 = 5$$

$$5 + 2^3 - 4 = 9$$

$$9 + 3^3 + 6 = 42$$

$$42 + 4^3 - 8 = 98$$

$$98 + 5^3 + 10 = 233$$

- **3, 11, 47, 183, ?, 2947**

1.775

2.770

3.765

4.783

5.739

**Answer – 5.739****Explanation :**

$$3 * 4 - 1 = 11$$

$$11 * 4 + 3 = 47$$

$$47 * 4 - 5 = 183$$

$$183 * 4 + 7 = 739$$

$$739 * 4 - 9 = 2947$$

- **2, ?, 8, 10, 28, 46**

1.2

2.5

3.7

4.8

5.9

**Answer – 1.4****Explanation :**

$$2*2 - 2 = 2$$

$$2*2 + 4 = 8$$

$$8*2 - 6 = 10$$

$$10*2 + 8 = 28$$

$$28*2 - 10 = 46$$

- **4, 6, 8, 30, 112, ?**

1.540

2.580

3.550

4.590

5.570

**Answer – 5.570**

**Explanation :**

$$\begin{aligned}4 * 1 + 2 &= 6 \\6 * 2 - 4 &= 8 \\8 * 3 + 6 &= 30 \\30 * 4 - 8 &= 112 \\112 * 5 + 10 &= 570\end{aligned}$$

•

**5, 12, ?, 41, 87, 214**

- 1.19
- 2.35
- 3.22
- 4.26
- 5.None of these

**Answer – 3.22**

**Explanation :**

$$\begin{aligned}5+7 &= 12 \\12+(7+3=10) &= 22 \\22+(10+9=19) &= 41 \\41+(19+27=46) &= 87 \\87+(46+81=127) &= 214\end{aligned}$$

• **14, ?, 13, 17.5, 21.75**

- 1.10
- 2.12
- 3.12.5
- 4.13.25
- 5.None of these

**Answer – 2.12**

**Explanation :**

$$\begin{aligned}14/2 + 5 &= 12 \\12/2 + 7 &= 13 \\13/2 + 11 &= 17.5 \\17.5/2 + 13 &= 21.75\end{aligned}$$

• **15, 5, 4.5, 5.8.7.9, ?**

- 1.9.6
- 2.11.42
- 3.12.23
- 4.10.74
- 5.None of these

**Answer – 4.10.74**

**Explanation :**

$$\begin{aligned}15*0.2 + 2 &= 5 \\5*0.3 + 3 &= 4.5 \\4.5*0.4 + 4 &= 5.8 \\5.8*0.5 + 5 &= 7.9 \\7.9*0.6 + 6 &= 10.74\end{aligned}$$

• **107, 106, 52, 16.3, ?**

- 1.3.075
- 2.2.625
- 3.1.916
- 4.0.416
- 5.None of these

**Answer – 1.3.075**

**Explanation :**

$$\begin{aligned}107-1/1 &= 106 \\106-2/2 &= 52 \\52-3/3 &= 16.3 \\16.3-4/4 &= 3.075\end{aligned}$$

• **29, ?, 79, 131, 201**

- 1.61
- 2.76
- 3.37
- 4.45
- 5.None of these

**Answer – 4.45 Explanation :**

$$\begin{aligned}29+(18*1-2) &= 29+16 = 45 \\45+(18*2-2) &= 45+34 = 79 \\79+(18*3-2) &= 79+52 = 131 \\131+(18*4-2) &= 131+70 = 201\end{aligned}$$

• **?, 6, 10.5, 23, 60**

- 1.7
- 2.5
- 3.4
- 4.6
- 5.None of these

**Answer – 2.5**

**Explanation :**

$$\begin{aligned}9*0.5 + 0.5 &= 5 \\5*1 + 1 &= 6 \\6*1.5 + 1.5 &= 10.5 \\10.5*2 + 2 &= 23 \\23*2.5 + 2.5 &= 60\end{aligned}$$

- 211, 90, 171, 122, 147, 138, ?

1.152  
2.176  
3.139  
4.180  
5. None of these

**Answer – 3.139**

**Explanation :**

$$\begin{aligned} 211 - 11^2 &= 90 \\ 90 + 9^2 &= 171 \\ 171 - 7^2 &= 122 \\ 122 + 5^2 &= 147 \\ 147 - 3^2 &= 138 \\ 138 + 1^2 &= 139 \end{aligned}$$

- 1256, 318, ?, 163, 328, 86

1.338  
2.836  
3.368  
4.638  
5. None of these

**Answer – 4.638**

**Explanation :**

$$\begin{aligned} 1256/4 &= 314 + 4 = 318 \\ 318 * 2 &= 636 + 2 = 638 \\ 638/4 &= 159 + 4 = 163 \\ 163 * 2 &= 326 + 2 = 328 \\ 328/4 &= 82 + 4 = 86 \end{aligned}$$

- 37, 54, 88, ?, 207

1.139  
2.213  
3.193  
4.391  
5. None of these

**Answer – 1.139**

**Explanation :**

$$\begin{aligned} 37 + 17 &= 54 \\ 54 + 2 * 17 &= 88 \\ 88 + 3 * 17 &= 139 \\ 139 + 4 * 17 &= 207 \end{aligned}$$

- 13, 29, 48, 70, 95, ?

1.132

2.121  
3.113  
4.123  
5. None of these

**Answer – 4.123**

**Explanation :**

$$\begin{aligned} 13 + (9 + 7) &= 29 \\ 29 + (9 + 10) &= 48 \\ 48 + (9 + 13) &= 70 \\ 70 + (9 + 16) &= 95 \\ 95 + (9 + 19) &= 123 \end{aligned}$$

- 2, 3, 6, 14, ?, 115.5

1. 52.5  
2. 47.5  
3. 67.5  
4. 37.5  
5. 27.5

**Answer – 4. 37.5**

**Explanation :**

$$\begin{aligned} 2 * 1 + 1 &= 3 \\ 3 * 1.5 + 1.5 &= 6 \\ 6 * 2 + 2 &= 14 \\ 14 * 2.5 + 2.5 &= 37.5 \\ 37.5 * 3 + 3 &= 115.5 \end{aligned}$$

- 12 13 28 85 ? 1711

1.354  
2.342  
3.294  
4.234  
5.244

**Answer – 2.342**

**Explanation :**

$$\begin{aligned} 12 * 1 - 1 + 2 &= 13 \\ 13 * 2 - 2 + 4 &= 28 \\ 28 * 3 - 1 + 2 &= 85 \\ 85 * 4 - 2 + 4 &= 342 \\ 342 * 5 - 1 + 2 &= 1711 \end{aligned}$$

- 3, 5, 10, ?, 92, 349

1.38  
2.27

3.56  
4.44  
5.62

**Answer – 2.27**

**Explanation :**

$$\begin{aligned}3 + 1^2 + 1 &= 5 \\5 + 2^2 + 1 &= 10 \\10 + 4^2 + 1 &= 27\end{aligned}$$

- 5, 8, 15, 37, ?, 309.5

1.99.5  
2.97.5  
3.94.5  
4.98.5  
5.96.5

**Answer – 1.99.5**

**Explanation :**

$$\begin{aligned}5 * 1 + 2 + 1 &= 8 \\8 * 1.5 + 4 - 1 &= 15 \\15 * 2 + 6 + 1 &= 37 \\37 * 2.5 + 8 - 1 &= 99.5 \\99.5 * 3 + 10 + 1 &= 309.5\end{aligned}$$

- 3, ?, 13, 39, 87, 169

1.9  
2.5  
3.6  
4.7  
5.2

**Answer – 2.5**

**Explanation :**

$$\begin{aligned}3 + 1^2 + 1 &= 5 \\5 + 3^2 - 1 &= 13 \\13 + 5^2 + 1 &= 39 \dots\dots\dots\end{aligned}$$

- 6, 7, 16, ?, 218, 1099

1.33  
2.53  
3.38  
4.24  
5.44

**Answer – 2.53**

**Explanation :**

$$\begin{aligned}6 * 1 - 1 + 2 &= 7 \\7 * 2 - 2 + 4 &= 16 \\16 * 3 - 1 + 6 &= 53\end{aligned}$$

- 3, 2, 14, 35, 107, ?

1.232  
2.218  
3.222  
4.225  
5.242

**Answer – 3.222**

**Explanation :**

$$\begin{aligned}3 + 1^3 - 2 &= 2 \\2 + 2^3 + 4 &= 14 \\14 + 3^3 - 6 &= 35 \\35 + 4^3 + 8 &= 107\end{aligned}$$

- 1, 3, 15, 55, ?, 899

1.275  
2.227  
3.265  
4.283  
5.255

**Answer – 2.227**

**Explanation :**

$$\begin{aligned}1 * 4 - 1 &= 3 \\3 * 4 + 3 &= 15 \\15 * 4 - 5 &= 55 \\55 * 4 + 7 &= 227 \\227 * 4 - 9 &= 899\end{aligned}$$

- 2, ?, 8, 10, 28, 46

1.2  
2.5  
3.7  
4.8  
5.9

**Answer – 1.2**

**Explanation :**

$$\begin{aligned}2 * 2 - 2 &= 2 \\2 * 2 + 4 &= 8 \\8 * 2 - 6 &= 10\end{aligned}$$

- 4, 6, 6, 8, 112, ?

1.540  
2.580  
3.550  
4.570  
5.520

**Answer – 4.570**

**Explanation :**

$$\begin{aligned}4 * 1 + 2 &= 6 \\6 * 2 - 4 &= 8 \\8 * 3 + 6 &= 30 \\30 * 4 - 8 &= 112 \\112 * 5 + 10 &= 570\end{aligned}$$

•

- 4, 6, 8, 30, ?, 570

1. 152  
2. 112  
3. 115  
4. 175  
5. 275

**Answer – 2. 112**

**Explanation :**

$$\begin{aligned}4 * 1 + 2 &= 6 \\6 * 2 - 4 &= 8 \\8 * 3 + 6 &= 30 \\30 * 4 - 8 &= 112 \\112 * 5 + 10 &= 570\end{aligned}$$

- 12 7 15 57 292 ?

1.2354  
2.2384  
3.2394  
4.2461  
5.2441

**Answer – 4.2461**

**Explanation :**

$$\begin{aligned}12 * 0.5 + 1^3 &= 7 \\7 * 1 + 2^3 &= 15 \\15 * 2 + 3^3 &= 57 \\57 * 4 + 4^3 &= 292 \\292 * 8 + 5^3 &= 2461\end{aligned}$$

- 2, 4, 11, ?, 103, 368

1.38  
2.26  
3.56  
4.44  
5.32

**Answer – 5.32**

**Explanation :**

$$\begin{aligned}2 + 1^2 + 1 &= 4 \\4 + 2^2 + 3 &= 11 \\11 + 4^2 + 5 &= 32\end{aligned}$$

- 4, 6, 13, 32, ?, 274

1.83  
2.82  
3.84  
4.88  
5.80

**Answer – 4.88**

**Explanation :**

$$\begin{aligned}4 * 1 + 2 &= 6 \\6 * 1.5 + 4 &= 13 \\13 * 2 + 6 &= 32 \\32 * 2.5 + 8 &= 88 \\88 * 3 + 10 &= 274\end{aligned}$$

- 4, ?, 18, 48, 104, 194

1.9  
2.5  
3.6  
4.7  
5.2

**Answer – 3.6**

**Explanation :**

$$\begin{aligned}4 + 1^2 + 1 &= 6 \\6 + 3^2 + 3 &= 18 \\18 + 5^2 + 5 &= 48 \dots\dots\dots\end{aligned}$$

- 6, 7, 16, ?, 198, 991

1.33  
2.43  
3.49  
4.24  
5.44

**Answer – 3.49**

**Explanation :**

$$6*1 - 1 + 2 = 7$$

$$7*2 - 2 + 4 = 16$$

$$16*3 - 1 + 2 = 49$$

- 3, 2, 14, 35, 107, ?

1.232

2.218

3.222

4.225

5.242

$$2*2 + 4 = 8$$

$$8*2 - 6 = 10$$

- 5, 6, 9, 32, 121, ?

1.625

2.675

3.655

4.615

5.635

**Answer – 3.222**

**Explanation :**

$$3 + 1^3 - 2 = 2$$

$$2 + 2^3 + 4 = 14$$

$$14 + 3^3 - 6 = 35$$

$$35 + 4^3 + 8 = 107$$

- 2, 9, 48, 235, ?, 5901

1.1175

2.1182

3.1165

4.1183

5.1155

**Answer – 4.615**

**Explanation :**

$$5 * 1 + 1 = 6$$

$$6 * 2 - 3 = 9$$

$$9 * 3 + 5 = 32$$

$$32 * 4 - 7 = 121$$

$$121 * 5 + 10 = 615$$

- 

- 4, 5, 9, 20, ?, 160.5

1. 52.5

2. 47.5

3. 67.5

4. 37.5

5. 27.5

**Answer – 2.1182**

**Explanation :**

$$2 * 5 - 1 = 9$$

$$9 * 5 + 3 = 48$$

$$48 * 5 - 5 = 235$$

$$235 * 5 + 7 = 1182$$

$$1182 * 5 - 9 = 5901$$

- 2, ?, 8, 10, 28, 46

1.2

2.5

3.7

4.8

5.9

**Answer – 1. 52.5**

**Explanation :**

$$4 * 1 + 1 = 5$$

$$5 * 1.5 + 1.5 = 9$$

$$9 * 2 + 2 = 20$$

$$20 * 2.5 + 2.5 = 52.5$$

$$52.5 * 3 + 3 = 160.5$$

- 12 6 6 12 48 ?

1.354

2.384

3.294

4.234

5.244

**Answer – 1.2**

**Explanation :**

$$2*2 - 2 = 2$$

**Answer – 2.384**

**Explanation :**

$$12 * 0.5 = 6$$

$$6 * 1 = 6$$

$$6 * 2 = 12$$

$$12 * 4 = 48$$

$$48 * 8 = 384$$

- 2, 4, 9, ?, 91, 348

1.38

2.26

3.56

4.44

5.62

3.38

4.24

5.44

**Answer – 2.43**

**Explanation :**

$$6*1 - 1 + 1 = 6$$

$$6*2 - 2 + 3 = 13$$

$$13*3 - 1 + 5 = 43$$

**Answer – 2.26**

**Explanation :**

$$2 + 1^2 + 1 = 4$$

$$4 + 2^2 + 1 = 9$$

$$9 + 4^2 + 1 = 26$$

- 6, 8, 16, 38, ?, 319

1.103

2.182

3.104

4.171

5.180

- 2, 1, 13, 34, 106, ?

1.232

2.218

3.221

4.225

5.242

**Answer – 3.221**

**Explanation :**

$$2 + 1^3 - 2 = 1$$

$$1 + 2^3 + 4 = 13$$

$$13 + 3^3 - 6 = 34$$

$$34 + 4^3 + 8 = 106$$

**Answer – 1.103**

**Explanation :**

$$6 * 1 + 2 = 8$$

$$8 * 1.5 + 4 = 16$$

$$16 * 2 + 6 = 38$$

$$38 * 2.5 + 8 = 103$$

$$103 * 3 + 10 = 319$$

- 2, 7, 31, 119, ?, 1923

1.475

2.470

3.465

4.483

5.455

**Answer – 4.483**

**Explanation :**

$$2 * 4 - 1 = 7$$

$$7 * 4 + 3 = 31$$

$$31 * 4 - 5 = 119$$

$$119 * 4 + 7 = 483$$

$$483 * 4 - 9 = 1923$$

- 4, ?, 16, 42, 92, 174

1.9

2.5

3.6

4.7

5.2

**Answer – 3.6**

**Explanation :**

$$4 + 1^2 + 1 = 6$$

$$6 + 3^2 + 1 = 16$$

$$16 + 5^2 + 1 = 42 \dots \dots$$

- 3, ?, 12, 18, 44, 78

1.4

2.5

3.7

4.8

5.9

- 6, 6, 13, ?, 177, 893

1.33

2.43

**Answer – 1.4**

**Explanation :**

$$3*2 - 2 = 4$$

$$4*2 + 4 = 12$$

$$12*2 - 6 = 18$$

- **5, 7, 10, 36, 136, ?**

1.640

2.680

3.650

4.690

5.620

$$5 * 1 = 5$$

$$5 * 2 = 10$$

$$10 * 4 = 40$$

$$40 * 8 = 320$$

- **2, 4, 14, ?, 90, 172**

1.30

2.20

3.50

4.40

5.60

**Answer – 4.690**

**Explanation :**

$$5 * 1 + 2 = 7$$

$$7 * 2 - 4 = 10$$

$$10 * 3 + 6 = 36$$

$$36 * 4 - 8 = 136$$

$$136 * 5 + 10 = 690$$

•

- **6, 7, 12, 26, ?, 205.5**

1. 57.5

2. 47.5

3. 67.5

4. 37.5

5. 27.5

**Answer – 3. 67.5**

**Explanation :**

$$6 * 1 + 1 = 7$$

$$7 * 1.5 + 1.5 = 12$$

$$12 * 2 + 2 = 26$$

$$26 * 2.5 + 2.5 = 67.5$$

$$67.5 * 3 + 3 = 205.5$$

- **10 5 5 10 40 ?**

1.350

2.320

3.290

4.230

5.240

**Answer – 2.320**

**Explanation :**

$$10 * 0.5 = 5$$

**Answer – 4.40**

**Explanation :**

$$2 + 1^2 + 1 = 4$$

$$4 + 3^2 + 1 = 14$$

$$14 + 5^2 + 1 = 40$$

- **2, 4, 10, 26, ?, 229**

1.73

2.82

3.64

4.71

5.80

**Answer – 1.73**

**Explanation :**

$$2 * 1 + 2 = 4$$

$$4 * 1.5 + 4 = 10$$

$$10 * 2 + 6 = 26$$

$$26 * 2.5 + 8 = 73$$

$$73 * 3 + 10 = 229$$

- **4, ?, 26, 63, 128, 229**

1.9

2.5

3.6

4.7

5.2

**Answer – 1.9**

**Explanation :**

$$4 + 2^2 + 1 = 9$$

$$9 + 4^2 + 1 = 26$$

$$26 + 6^2 + 1 = 63 \dots \dots \dots$$

- 6, 5, 8, ?, 90, 449

1.23

2.26

3.38

4.24

5.14

4.8

5.9

**Answer – 1.6****Explanation :**

$$4*2 - 2 = 6$$

$$6*2 + 4 = 16$$

$$16*2 - 6 = 26$$

**Answer – 1.23****Explanation :**

$$6*1 - 1 = 5$$

$$5*2 - 2 = 8$$

$$8*3 - 1 = 23$$

- 3, 2, 14, 35, 107, ?

1.232

2.218

3.222

4.225

5.242

- 6, 8, 12, 42, 160, ?

1.870

2.840

3.850

4.810

5.820

**Answer – 4.810****Explanation :**

$$6 * 1 + 2 = 8$$

$$8 * 2 - 4 = 12$$

$$12 * 3 + 6 = 42$$

$$42 * 4 - 8 = 160$$

$$160 * 5 + 10 = 810$$

•

- 6, 6, 9, 18, 45, ?

1.127

2.132

3.135

4.118

5.120

**Answer – 3.135****Explanation :**

$$6 * 1 = 6$$

$$6 * 1.5 = 9$$

$$9 * 2 = 18$$

$$18 * 2.5 = 45$$

$$45 * 3 = 135$$

- 8 4 4 8 32 ?

1.254

2.256

3.292

4.232

5.246

**Answer – 4.453****Explanation :**

$$2 * 3 - 1 = 5$$

$$5 * 3 + 3 = 18$$

$$18 * 3 - 5 = 49$$

$$49 * 3 + 7 = 154$$

$$154 * 3 - 9 = 453$$

- 4, ?, 16, 26, 60, 110

1.6

2.5

3.7

**Answer – 2.256**

**Explanation :**

$$8 * 0.5 = 4$$

$$4 * 1 = 4$$

$$4 * 2 = 8$$

$$8 * 4 = 32$$

$$32 * 8 = 256$$

- **4, 6, 11, ?, 65, 130**

$$1.32$$

$$2.28$$

$$3.25$$

$$4.33$$

$$5.31$$

**Answer – 2.28**

**Explanation :**

$$4 + 1^2 + 1 = 6$$

$$6 + 2^2 + 1 = 11$$

$$11 + 4^2 + 1 = 28$$

- **3, 4, 9, 23, ?, 202.5**

$$1.70.5$$

$$2.82.5$$

$$3.64.5$$

$$4.71.5$$

$$5.80.5$$

**Answer – 3.64.5**

**Explanation :**

$$3 * 1 + 1 = 4$$

$$4 * 1.5 + 3 = 9$$

$$9 * 2 + 5 = 23$$

$$23 * 2.5 + 7 = 64.5$$

$$64.5 * 3 + 9 = 202.5$$

- **8, ?, 20, 46, 96, 178**

$$1.10$$

$$2.15$$

$$3.16$$

$$4.17$$

$$5.12$$

**Answer – 1.10**

**Explanation :**

$$8 + 1^2 + 1 = 10$$

$$10 + 3^2 + 1 = 20$$

$$20 + 5^2 + 1 = 46 \dots\dots$$

- **8, 7, 13, ?, 151, 754**

$$1.42$$

$$2.24$$

$$3.38$$

$$4.24$$

$$5.14$$

**Answer – 3.38**

**Explanation :**

$$8 * 1 - 1 = 7$$

$$7 * 2 - 1 = 13$$

$$13 * 3 - 1 = 38$$

- **3, 3, 13, 37, 105, ?**

$$1.232$$

$$2.221$$

$$3.223$$

$$4.225$$

$$5.242$$

**Answer – 4.225**

**Explanation :**

$$3 + 1^3 - 1 = 3$$

$$3 + 2^3 + 2 = 13$$

$$13 + 3^3 - 3 = 37$$

$$37 + 4^3 + 4 = 105$$

- **2, 7, 31, 119, 483, ?**

$$1.1975$$

$$2.1970$$

$$3.1965$$

$$4.1923$$

$$5.1955$$

**Answer – 4.1923**

**Explanation :**

$$2 * 4 - 1 = 7$$

$$7 * 4 + 3 = 31$$

$$31 * 4 - 5 = 119$$

$$119 * 4 + 7 = 483$$

$$483 * 4 - 9 = 1923$$

- **4, ?, 11, 17, 27, 45**

$$1.6$$

2.5  
3.7  
4.8  
5.9

Answer – 3.7

**Explanation :**

$$\begin{aligned}4*2 - 1 &= 7 \\7*2 - 3 &= 11 \\11*2 - 5 &= 17\end{aligned}$$

- 8, 10, 16, 54, 208, ?

1.1370  
2.1340  
3.1050  
4.1210  
5.1520

Answer – 3.1050

**Explanation :**

$$\begin{aligned}8 * 1 + 2 &= 10 \\10 * 2 - 4 &= 16 \\16 * 3 + 6 &= 54 \\54 * 4 - 8 &= 208 \\208 * 5 + 10 &= 1050\end{aligned}$$

- 5, 6, 14, 45, 184, ?

1.927  
2.932  
3.925  
4.918  
5.920

Answer – 3.925

**Explanation :**

$$\begin{aligned}5 * 1 + 1 &= 6 \\6 * 2 + 2 &= 14 \\14 * 3 + 3 &= 45 \\45 * 4 + 4 &= 184 \\184 * 5 + 5 &= 925\end{aligned}$$

- 8 4 4 6 12 ?

1.50  
2.20  
3.90

4.30  
5.40

Answer – 4.30

**Explanation :**

$$\begin{aligned}8 * 0.5 &= 4 \\4 * 1 &= 4 \\4 * 1.5 &= 6 \\6 * 2 &= 12 \\12 * 2.5 &= 30\end{aligned}$$

- 16, 21, ?, 48, 74, 111

1.32  
2.24  
3.25  
4.33  
5.31

Answer – 5.31

**Explanation :**

$$\begin{aligned}21 - 16 &= 5 \\31 - 21 &= 10 \\48 - 31 &= 17 \\74 - 48 &= 26; 10 - 5 = 5; 17 - 10 = 7; 26 - 17 &= 9\end{aligned}$$

- 8, 9, 15, 32, ?, 250.5

1.70.5  
2.82.5  
3.68.5  
4.71.5  
5.80.5

Answer – 2.82.5

**Explanation :**

$$\begin{aligned}8 * 1 + 1 &= 9 \\9 * 1.5 + 1.5 &= 15 \\15 * 2 + 2 &= 32 \\32 * 2.5 + 2.5 &= 82.5 \\82.5 * 3 + 3 &= 250.5\end{aligned}$$

- 11, ?, 18, 35, 100, 357

1.13  
2.15  
3.16  
4.17  
5.12

**Answer – 1.13**

**Explanation :**

$$11 + 1^2 + 1 = 13$$

$$13 + 2^2 + 1 = 18$$

$$18 + 4^2 + 1 = 35 \dots\dots$$

- **8, 7, 12, ?, 128, 635**

1.42

2.24

3.33

4.24

5.14

- **11, ?, 33, 45, 59, 77**

1.53

2.25

3.21

4.28

5.21

**Answer – 3.33**

**Explanation :**

$$8 * 1 - 1 = 7$$

$$7 * 2 - 2 = 12$$

$$12 * 3 - 3 = 33$$

- **3, 3, 12, 38, 103, ?**

1.232

2.221

3.223

4.227

5.242

**Answer – 5.21**

**Explanation :**

$$11 * 2 - 1 = 21$$

$$21 * 2 - 11 = 33$$

$$33 * 2 - 21 = 45$$

- **18, 20, 36, 114, 448, ?**

1.2370

2.2340

3.2250

4.2410

5.2520

**Answer – 3.2250**

**Explanation :**

$$18 * 1 + 2 = 20$$

$$20 * 2 - 4 = 36$$

$$36 * 3 + 6 = 114$$

$$114 * 4 - 8 = 448$$

$$448 * 5 + 10 = 2250$$

- 

- **124 , 96, 60, 50 , 28 , ?**

1.27

2.32

3.25

4.18

5.20

**Answer – 4.227**

**Explanation :**

$$3 + 1^3 - 1 = 3$$

$$3 + 2^3 + 1 = 12$$

$$12 + 3^3 - 1 = 38$$

$$38 + 4^3 + 1 = 103$$

- **2, 5, 18, 49, 154, ?**

1.475

2.470

3.465

4.453

5.455

**Answer – 4.453**

**Explanation :**

$$2 * 3 - 1 = 5$$

$$5 * 3 + 3 = 18$$

$$18 * 3 - 5 = 49$$

$$49 * 3 + 7 = 154$$

$$154 * 3 - 9 = 453$$

**Answer – 1.27**

**Explanation :**

$$124/2 = 62 - 2 = 60$$

$$96/2 =$$

$$48+2 = 50$$

$$50/2 =$$

$$60/2=30-2 = 28$$

$$25+2 = 27$$

- **37, 38, 58, ?, 293.5**

1.152

2.124

3.98

4.110

5.117

**Answer – 5.117****Explanation :**

$$37*1+1 = 38$$

$$38*3/2 + 1 = 58$$

$$58*2+1 = 117$$

$$117*5/2+1 = 293.5$$

- **11, 18, ?, 159, 652**

1.48

2.54

3.75

4.63

5.91

**Answer – 1.48****Explanation :**

$$11*1+(1*7) = 11+7 = 18$$

$$18*2+(2*6) = 36+12 = 48$$

$$48*3+(3*5) = 144+15 = 159$$

$$159*4+(4*4) = 636+16 = 652$$

- **8,9, 11, 19, 67, ?**

1.514

2.354

3.438

4.451

5.414

**Answer – 4.451**  
**Explanation :**

$$8+1*1 = 9$$

$$9+(1*2=2) = 11$$

$$11+(2*4=8) = 19$$

$$19+(8*6=48) = 67$$

$$67+(48*8=384) = 451$$

- **1650, ?, 50, 9.5, 1.17, -0.415**

1.1050

2.270

3.560

4.750

5.980

**Answer – 2.270****Explanation :**

$$1650/6 - 5 = 275 - 5 = 270$$

$$270/5 - 4 = 54 - 4 = 50$$

$$50/4 - 3 = 12.5 - 3 = 9.5$$

$$9.5/3 - 2 = 3.17 - 2 = 1.17$$

$$1.17/2 - 1 = 0.585 - 1 = -0.415$$

- **290, 360, ?, 528, 626**

1.442

2.424

3.222

4.444

5.440

**Answer – 1.442****Explanation :**

$$17^2 = 289 + 1 = 290$$

$$19^2 = 361 - 1 = 360$$

$$21^2 = 441 + 1 = 442$$

$$23^2 = 529 - 1 = 528$$

$$25^2 = 625 + 1 = 626$$

- **2, 4, 18, 44, 82, ?, 194**

1.132

2.121

3.123

4.114

5.142

**Answer – 1.132****Explanation :**

$$2+2 = 4$$

$$4+(2+12) = 18$$

$$18+(2+24) = 44$$

$$44+(2+36) = 82$$

$$82+(2+48) = 132$$

$$132+(2+60) = 194$$

- **785, 835, ?, 905, 925, 935**

1.875

2.970

3.865

4.940

5.855

**Answer – 1.875****Explanation :**

$$785 - 5 + 55 = 835$$

$$835 - 4 + 44 = 875$$

$$875 - 3 + 33 = 905$$

$$905 - 2 + 22 = 925$$

$$925 - 1 + 11 = 935$$

- **312, ?, 39.625, 30.47, 31.47**

1.145.55

2.78.25

3.112.5

4.98

5.220.75

$$22.5 * 4 = 90$$

$$90 * 6 = 540$$

- **21, ?, 35, 57, 89, 131**

A.28

B.21

C.26

D.23

E.None of these

**Answer – 4.23**

**Explanation :**

$$21+2 = 23$$

$$23+12 = 35$$

$$35+22 = 57$$

$$57+32 = 89$$

$$89+42 = 131$$

- **3, 14, 39, 103, 270, ?**

A.606

B.505

C.707

D.404

E.None of these

**Answer – 3.707**

**Explanation :**

$$3+11=14$$

$$14+(11+14=25)=39$$

$$39+(25+39=64)=103$$

$$103+(64+103=167)=270$$

$$270+(167+270=437)=707$$

**Answer – 5.520**

**Explanation :**

$$520 * 1/5 = 104$$

$$104 * 2/5 = 41.6$$

$$41.6 * 3/5 = 24.96$$

$$24.96 * 4/5 = 19.97$$

- 

**6,6, 9, ?, 90,**

**540**

A.22.5

B.21

C.23.2

D.24.5

E.None of these

**Answer – 1.22.5**

**Explanation :**

$$6 * 1 = 6$$

$$6 * 1.5 = 9$$

$$9 * 2.5 = 22.5$$

- **14, 18, ?, 458, 4458**

A.128

B.58

C.48

D.44

E.None of these

**Answer – 2.58**

**Explanation :**

$$14+4 = 18$$

$$18+40 = 58$$

$$58+400 = 458$$

$$458+4000 = 4458$$

- 112, 113, 102, 213, ?  
 A.899  
 B.-988  
 C.899  
 D.-898  
 E.None of these

**Answer – 4.-898**

**Explanation :**

$$\begin{aligned} 112+1 &= 113 \\ 113-11 &= 102 \\ 102+111 &= 213 \\ 213-1111 &= -898 \end{aligned}$$

- 221, 55, 224, 55, 236, ?, 257  
 A.242  
 B.55  
 C.254  
 D.57.25  
 E.None of these

**Answer – 4.57.25**

**Explanation :**

$$\begin{aligned} (221-1)/4 &= 55 \\ (55+1)*4 &= 224 \\ (224-4)/4 &= 55 \\ (55+4)*4 &= 236 \\ (236-7)/4 &= 57.25 \\ (57.25+7)*4 &= 257 \end{aligned}$$

- 15, 80, 255, ?, 1295  
 A.615  
 B.625  
 C.525  
 D.624  
 E.None of these

**Answer – 4.624**

**Explanation :**

$$\begin{aligned} 2^4 &= 16-1 = 15 \\ 3^4 &= 81-1 = 80 \\ 4^4 &= 256-1 = 255 \\ 5^4 &= 625-1 = 624 \\ 6^4 &= 1296-1 = 1295 \end{aligned}$$

- ?, 45, 90, 88, 176, 178, 356  
 A.52

- B.39  
 C.43  
 D.65  
 E.None of these

**Answer – 3.43**

**Explanation :**

$$\begin{aligned} 43+2 &= 45 \\ 45*2 &= 90 \\ 90-2 &= 88 \\ 88*2 &= 176 \\ 176+2 &= 178 \\ 178*2 &= 356 \end{aligned}$$

- 68, 80, 98, 122, ?, 188  
 A.134  
 B.152  
 C.122  
 D.148  
 E.None of these

**Answer – 2.152**

**Explanation :**

$$\begin{aligned} 68+12+0 &= 80 \\ 80+12+6 &= 98 \\ 98+12+12 &= 122 \\ 122+12+18 &= 152 \\ 152+12+24 &= 188 \end{aligned}$$

- 17, 10, 12, 20.5, ?  
 A.44  
 B.51  
 C.37  
 D.63  
 E.None of these

**Answer – 1.44**

**Explanation :**

$$\begin{aligned} 17*0.5+1.5 &= 10 \\ 10*1+2 &= 12 \\ 12*1.5+2.5 &= 20.5 \\ 20.5*2+3 &= 44 \end{aligned}$$

- 5, 15, 65, 315, ?, 7815  
 A. 1695  
 B. 1935

- C. 1565  
 D. 1685  
 E. None of these

**Answer – C. 1565**

**Explanation :**

$$\begin{aligned} 5 * 5 - 10 &= 15 \\ 15 * 5 - 10 &= 65 \\ 65 * 5 - 10 &= 315 \\ 315 * 5 - 10 &= 1565 \\ 1565 * 5 - 10 &= 7815 \end{aligned}$$

- **8 18 28 90 356 ?**

- A. 1782  
 B. 1892  
 C. 1652  
 D. 1662  
 E. None of these

**Answer – A. 1782**

**Explanation :**

$$\begin{aligned} * 1 + 10 \\ * 2 - 8 \\ * 3 + 6 \end{aligned}$$

- **2 12 52 162 332 ?**

- A. 342  
 B. 366  
 C. 396  
 D. 291  
 E. None of these

**Answer – A. 342**

**Explanation :**

$$\begin{aligned} 2 * 5 + 2 &= 12 \\ 12 * 4 + 4 &= 52 \\ 52 * 3 + 6 &= 162 \end{aligned}$$

- **4 14 44 150 ? 3090**

- A. 612  
 B. 632  
 C. 616  
 D. 618  
 E. None of these

**Answer – C. 616**

**Explanation :**

$$\begin{aligned} 4 * 1 + 10 * 1 &= 14 \\ 14 * 2 + 8 * 2 &= 44 \\ 44 * 3 + 6 * 3 &= 150 \\ 150 * 4 + 4 * 4 &= 616 \\ 616 * 5 + 2 * 5 &= 3090 \end{aligned}$$

- **2 51 87 112 128 137 ?**

- A. 152  
 B. 131  
 C. 213  
 D. 141  
 E. None of these

**Answer – D. 141**

**Explanation :**

$$\begin{aligned} 2 + 7^2 &= 51 \\ 51 + 6^2 &= 87 \\ 87 + 5^2 &= 112 \\ 112 + 4^2 &= 128 \\ 128 + 3^2 &= 137 \\ 137 + 2^2 &= 141 \end{aligned}$$

- **5 8 8 10 13 ?**

- A. 12  
 B. 14  
 C. 18  
 D. 16  
 E. None of these

**Answer – D. 16**

**Explanation :**

$$\begin{aligned} *2 - 2 \\ /2 + 4 \\ *2 - 6 \end{aligned}$$

- **7 23 55 109 191 ?**

- A. 343  
 B. 323  
 C. 307  
 D. 303  
 E. None of these

**Answer – C. 307**

**Explanation :**

$$\begin{aligned} 2^3 - 1^2 \\ 3^3 - 2^2 \\ 4^3 - 3^2 \end{aligned}$$

**• 3 2 3 6 14 ?**

- A. 46.5  
B. 36.5  
C. 35.5  
D. 45.5  
E. None of these

Answer – E. None of these

**Explanation :**

$$\begin{aligned}3 * 0.5 + 0.5 &= 2 \\2 * 1.0 + 1.0 &= 3 \\3 * 1.5 + 1.5 &= 6 \\6 * 2 + 2 &= 14 \\14 * 2.5 + 2.5 &= 37.5\end{aligned}$$

**• 3 8 ? 76 235 696**

- A. 49  
B. 26  
C. 27  
D. 22  
E. None of these

Answer – C. 27

**Explanation :**

$$\begin{aligned}3 * 3 - 1 &= 8 \\8 * 3 + 3 &= 27 \\27 * 3 - 5 &= 76 \\76 * 3 + 7 &= 235 \\235 * 3 - 9 &= 696\end{aligned}$$

**• 6 13 24 51 98 ?**

- A. 149  
B. 159  
C. 189  
D. 201  
E. None of these

Answer – D. 201

**Explanation :**

$$\begin{aligned}6 * 2 + 1 &\\13 * 2 - 2 &\\24 * 2 + 3 &\\51 * 2 - 4 &\\98 * 2 + 5 &\end{aligned}$$

**•****798 654 554 490 454 ?**

A. 438

- B. 448  
C. 488  
D. 498  
E. None of these

Answer – A. 438

**Explanation :**

$$\begin{aligned}-12^2 &-10^2, -8^2 \\438 &\end{aligned}$$

**• 13 15 26 84 328 ?**

- A. 1780  
B. 1890  
C. 1650  
D. 1690  
E. None of these

Answer – C. 1650

**Explanation :**

$$\begin{aligned}* 1 + 2 &\\* 2 - 4 &\\* 3 + 6 &\end{aligned}$$

**• 2 11 46 141 286 ?**

- A. 342  
B. 366  
C. 396  
D. 291  
E. None of these

Answer – D. 291

**Explanation :**

$$\begin{aligned}2 * 5 + 1 &= 11; 11 * 4 + 2 = 46; 46 * 3 + 3 = \\141 &\end{aligned}$$

**• 4 11 34 ? 484 2435**

- A. 112  
B. 132  
C. 115  
D. 117  
E. None of these

Answer – D. 117

**Explanation :**

$$11 = 4 * 1 + 7 * 1$$

$$34 = 11 * 2 + 6 * 2$$

$$117 = 34 * 3 + 5 * 3$$

• **6072 1010 200 48 14 ?**

- A. 5
- B. 3
- C. 2
- D. 1
- E. None of these

Answer – **A. 5**

**Explanation :**

$$\begin{array}{r} -12 / 6 \\ -10 / 5 \\ -8 / 4 \end{array}$$

• **5 8 6 10 ? 12**

- A. 2
- B. 4
- C. 6
- D. 7
- E. None of these

Answer – **D. 7**

**Explanation :**

$$\begin{array}{r} *2 - 2 \\ /2 + 2 \\ *2 - 2 \end{array}$$

• **6 ? 56 109 184 219**

- A. 43
- B. 23
- C. 27
- D. 33
- E. None of these

Answer – **B. 23**

**Explanation :**

$$\begin{array}{r} 2^3 - 2^1 \\ 3^3 - 2^2 \\ 4^3 - 2^3 \end{array}$$

• **13700 1957 326 ? 16 5**

- A. 60
- B. 65
- C. 55
- D. 45
- E. None of these

Answer – **B. 65**

**Explanation :**

$$\begin{array}{r} -1 / 7 \\ -1 / 6 \\ -1 / 5 \end{array}$$

• **5 12 ? 340 1684 6724**

- A. 50
- B. 72
- C. 60
- D. 84
- E. None of these

Answer – **C. 60**

**Explanation :**

$$\begin{array}{r} *8 - 28 \\ *7 - 24 \\ *6 - 20 \end{array}$$

• **5 11 20 43 82 ?**

- A. 149
- B. 159
- C. 169
- D. 189
- E. None of these

Answer – **C. 169**

**Explanation :**

$$\begin{array}{r} 5 * 2 + 1 \\ 11 * 2 - 2 \\ 20 * 2 + 3 \\ 43 * 2 - 4 \\ 82 * 2 + 5 \end{array}$$

# **100 IMPORTANT WRONG NUMBER SERIES QUESTIONS WITH SOLUTIONS**

**ADDA.COM**

# 100 Important Wrong Number Series Question Download Pdf

**Directions (Q. 1-100):** In each of these questions a number series is given. In each series only one number is wrong. Find out the wrong number.

1). **50 51 47 56 42 65 29**

1. 51
2. 47
3. 56
4. 42
5. 65

2). **3 9 23 99 479 2881 20159**

1. 9
2. 23
3. 99
4. 479
5. 2881

3). **7 4 6 9 20 52.5 160.5**

1. 6
2. 4
3. 20
4. 9
5. 5

4). **1 3 6 11 20 39 70**

1. 3
2. 39
3. 11
4. 20
5. 6

5). **2 13 27 113 561 3369 23581**

1. 27
2. 13

3. 113
4. 561
5. 3369

**Answer With Explanation:**

**1).** The series is  $50 + 1^2 = 51$ ,  $51 - 2^2 = 47$ ,  $47 + 3^2 = 56$ ,  $56 - 4^2 = 40$ ,  $40 + 5^2 = 65$ ,  $65 - 6^2 = 29$ .

Hence, there should be 40 in place of 42.

**Answer is: D**

**2).** The series is  $3 \times 2 + 3 = 9$ ,  $9 \times 3 - 4 = 23$ ,  $23 \times 4 + 5 = 97$ ,  $97 \times 5 - 6 = 479$ ,  $479 \times 6 + 7 = 2881$ ,  $2881 \times 7 - 8 = 20159$

Hence, there should be 97 in place of 99.

**Answer is: C**

**3).** The series is  $x0.5 + 0.5$ ,  $x1 + 1$ ,  $x 1.5 + 1.5$ ,  $x 2 + 2$ ,  $x 2.5 + 2.5$ ,  $x 3 + 3\dots$

Hence, there should be 5 in place of 6.

**Answer is: A**

**4).** The series is  $1 \times 2 + 1 = 3$ ,  $3 \times 2 + 0 = 6$ ,  $6 \times 2 - 1 = 11$ ,  $11 \times 2 - 2 = 20$ ,  $20 \times 2 - 3 = 37$ ,  $37 \times 2 - 4 = 70$ .

Hence, there should be 37 in place of 39.

**Answer is: B**

**5).** The series is  $2 \times 2 + 7 = 11$ ,  $11 \times 3 - 6 = 27$ ,  $27 \times 4 + 5 = 113$ ,  $113 \times 5 - 4 = 561$ ,  $561 \times 6 + 3 = 3369$ ,  $3369 \times 7 - 2 = 23581$ .

Hence, there should be 11 in place of 13.

**Answer is: B****6. 7 16 27 40 46**

1. 7
2. 16

- 3. 27
- 4. 40
- 5. 46

**7). 729 1331 2497 3375 4913**

- 1. 729
- 2. 1331
- 3. 3375
- 4. 2497
- 5. 4913

**8). 80 119 166 221 223**

- 1. 80
- 2. 119
- 3. 166
- 4. 192
- 5. 223

**9). 8 8.5 11.5 14 17**

- 1. 8
- 2. 5
- 3. 5
- 4. 14
- 5. 17

**10). 439 778 1456 2812 5624**

- 1. 439
- 2. 778
- 3. 1456
- 4. 2812
- 5. 5624

**Answer With Explanation:**

**6).** The series is  $5 \times 1 + 2 = 7$ ,  $6 \times 2 + 4 = 16$ ,  $7 \times 3 + 6 = 27$ ,  $8 \times 4 + 8 = 40$ ,  $9 \times 5 + 10 = 55$ .

Hence, there should be 55 in place of 46.

Alternate Method: +9, +11, +13, +15

**Answer is: E**

7). The series is  $9^3, 11^3, 13^3, 15^3, 17^3,$

Hence, there should be 2197 in place of 2497.

**Answer is: D**

8). The series is  $9^2 - 1, 11^2 - 2, 13^2 - 3, 15^2 - 4, 17^2 - 5,$

Hence, there should be 284 in place of 223.

**Answer is: E**

9). The series is  $8 + 1.5 = 9.5, 9.5 + 2 = 11.5, 11.5 + 2.5 = 14, 14 + 3 = 17$

Hence, there should be 9.5 in place of 8.5.

**Answer is: B**

10). The series is  $+339, +678, +1356, +2712,$

Hence, there should be 5524 in place of 5624.

**Answer is: E**

11). **17, 36, 132, 635, 3500, 21750, 153762**

1. 635
2. 17
3. 132
4. 3500
5. 36

12). **17, 20, 46, 147, 599, 3015, 18018**

1. 20
2. 46
3. 599
4. 147
5. 3015

13). **90, 135, 286, 750, 2160, 6405, 19155**

1. 90
2. 750
3. 6405
4. 286

5. 2160

**14). 9, 14, 40, 129, 536, 2705, 16260**

1. 14
2. 40
3. 536
4. 9
5. 129

**15). 8, 18, 64, 272, 1395, 8424, 59045**

1. 18
2. 8
3. 272
4. 1395
5. 64

**Answer With Explanation:**

**11).** The number series should be 636 in the place of 635.

The series is  $(17 + 1^3) \times 2$ ,  $(36 + 2^3) \times 3$ ,  $(132 + 3^3) \times 4$ ,  $(636 + 4^3) \times 5$

**Answer is: a)**

**12).** The number series should be 600 in the place of 599.

The series is  $\times 1 + 3$ ,  $\times 2 + 6$ ,  $\times 3 + 9$ ,  $\times 4 + 12$ ,  $\times 5 + 15$

**Answer is: c)**

**13).** The number series should be 285 in the place of 286.

The series is  $(90-45) \times 3$ ,  $(135-40) \times 3$ ,  $(285-35) \times 3$ ,  $(750-30) \times 3$ ,  $(2160-25) \times 3$ ,...

**Answer is: d)**

**14).** The number series should be 38 in the place of 40.

The series is  $\times 1 + 5$ ,  $\times 2 + 10$ ,  $\times 3 + 15$ ,  $\times 4 + 20$ ,  $\times 5 + 25$

**Answer is: b)**

**15).** The number series should be 63 in the place of 64.

The series is  $(8+1) \times 2$ ,  $(18+3) \times 3$ ,  $(63+5) \times 4$ ,  $(272+7) \times 5$

**Answer is: e)**

**16). 32, 39, 65, 128, 253, 467, 809, 1320**

1. 39
2. 65
3. 253
4. 467
5. 32

**17). 38, 49, 62, 72, 77, 91, 101**

1. 49
2. 72
3. 77
4. 91
5. 38

**18). 19, 22, 32, 46, 73, 108, 158**

1. 22
2. 46
3. 73
4. 19
5. 158

**19). 47, 44, 45, 46, 33, 57, 3, 88**

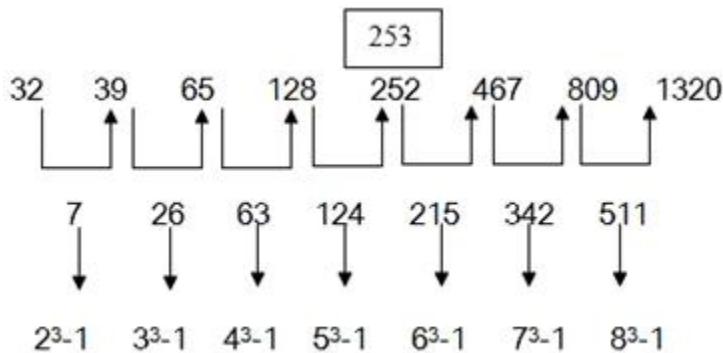
1. 44
2. 57
3. 46
4. 3
5. 47

**20). 45, 131, 228, 338, 466, 619, 800**

1. 131
2. 466
3. 619
4. 45
5. 800

**Answer With Explanation:**

**16).**The series is.,



Hence, 253 is a wrong number.

**Answer: C**

**17).**The series is,

$$38 = 3+8 = 11 = 38 + 11 = 49$$

$$49 = 4+9 = 13 = 49 + 13 = 62$$

$$62 = 6+2 = 8 = 62 + 8 = 70 \neq 72$$

$$70 = 7+0 = 7 = 70 + 7 = 77$$

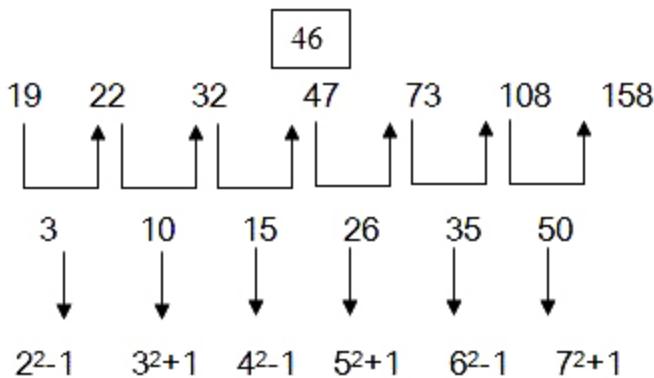
$$77 = 7+7 = 14 = 77 + 14 = 91$$

$$91 = 9+1 = 10 = 91 + 10 = 101$$

Hence, 72 is the wrong number.

**Answer: B**

**18).**The series is,



Hence, 46 is the wrong number

**Answer: B**

**19).** First series 47, 45, 33, 3

$$47 - (1 \times 2) = 45$$

$$45 - (3 \times 4) = 33$$

$$33 - (5 \times 6) = 3$$

Second series 44, 46, 57, 88

$$44 + (1 \times 2) = 46$$

$$46 + (3 \times 4) = 58 \neq 57$$

$$58 + (5 \times 6) = 88$$

Hence, 57 is the wrong answer.

**Answer: B**

**20).** The series is,



11, 13, 19, 23 and 29 are the prime numbers

Hence, 466 is the wrong number.

**Answer: B**

**21). 1, 8, 66, 460, 2758, 13785, 55146**

1. 460
2. 2758
3. 66
4. 8
5. 55146

**22). 56, 57, 48, 73, 24, 105, -10**

1. 57
2. 73
3. 105
4. -10
5. 24

**23). 2, 2, 13, 59, 363, 2519, 20161**

1. 13
2. 20161
3. 2519
4. 59
5. 363

**24). 3, 1, 3, 0.7, 3, 0.6, 3, 0.5, 3**

1. 1
2. 7
3. 6

- 4. 3
- 5. 5

**25).** 2, 6, 13, 26, 54, 100, 197

- 1. 26
- 2. 100
- 3. 54
- 4. 197
- 5. 13

**Explanation With Answer Key:**

**21).** 1 8 66 460 2758 13785 55146

Here  $1 \times 9 - 1 = 8$ ;  $8 \times 8 + 2 = 66$ ;  $66 \times 7 - 3 = 459$ ;

$459 \times 6 + 4 = 2758$ ;  $2758 \times 5 - 5 = 13785$ ;  $13785$

$\times 4 + 6 = 55146$

**Answer: a)**

**22).** 56 57 48 73 24 105 -10

Here  $56 + 1^2 = 57$ ;

$57 - 3^2 = 48$ ;  $48 + 5^2 = 73$ ;  $73 - 7^2 = 24$ ;

$24 + 9^2 = 105$ ;  $105 - 11^2 = -16$

**Answer: d)**

**23).** 2 2 13 59 363 2519 20161

Here  $2 \times 3 - 4 = 2$ ;  $2 \times 4 + 5 = 13$ ;

$13 \times 5 - 6 = 59$ ;  $59 \times 6 + 7 = 361$ ;

$361 \times 7 - 8 = 2519$ ;  $2519 \times 8 + 9 = 20161$

**Answer: e)**

**24).** 3 1 3 0.7 3 0.6 3

$3 \times 1/3 = 1$ ;

$1 \times 3 = 3;$

$3 \times 1/4 = 0.75;$

$0.75 \times 4 = 3;$

$3 \times 1/5 = 0.6;$

$0.6 \times 5 = 3;$

$3 \times 1/6 = 0.5;$

$0.5 \times 6 = 3.$

**Answer: b)**

**25).** 2 6 13 26 54 100 197

Here  $2 \times 2 + 2 = 6$ ;  $6 \times 2 + 1 = 13$ ;

$13 \times 2 + 0 = 26$ ;  $26 \times 2 - 1 = 51$ ;

$51 \times 2 - 2 = 100$ ;  $100 \times 2 - 3 = 197$

**Answer: c)**

**26).** 3, 7.5, 15, 37.5, 75, 167.5, 375

1. 5
2. 75
3. 5
4. 15
5. 5

**27).** 0, 1, 9, 36, 99, 225, 441

1. 9
2. 36
3. 99
4. 225
5. 441

**28).** 2, 3, 5, 8, 14, 23, 41, 69

1. 5
2. 8
3. 14
4. 41
5. 69

**29). 5, 10, 17, 27, 37, 50, 65**

1. 10
2. 17
3. 37
4. 27
5. 50

**30). 108, 54, 36, 18, 9, 6, 4**

1. 54
2. 36
3. 18
4. 9
5. 6

**Explanation With Answer Key:**

**26).** The series is  $\times 2.5, \times 2$  alternately

**Answer: a)**

**27).** The differences are

0 1 9 36 99 225 441

$0^2$   $1^2$   $3^2$   $6^2$   $10^2$   $15^2$   $21^2$

**Answer: c)**

**28).** The series is an alternate series, having

$S_1 = 2 \ 5 \ 14 \ 41; \times 3 - 1$  in each term

$S_2 = 3 \ 8 \ 23 \ 69; \times 3 - 1$  in each term

**Answer: e)**

**29).** The series is +5, +7, +9, +11, ....

**Answer: d)**

**30).** The series is  $\div 2, \div 1.5$  alternately.

**Answer: d)**

**31).** 4, 12, 42, 196, 1005, 6066, 42511

- a) 12
- b) 42
- c) 196
- d) 1005
- e) 6066

**32).** 7, 13, 25, 49, 97, 194, 385

- a) 13
- b) 25
- c) 49
- d) 194
- e) 385

**33).** 10, 15, 24, 35, 54, 75, 100

- a) 10
- b) 24
- c) 35
- d) 54
- e) 100

**34).** 2, 8, 32, 148, 765, 4626, 32431

- a) 32431

b) 765

c) 148

d) 32

e) 2

**35). 73, 57, 49, 44, 43, 42**

a) 73

b) 57

c) 49

d) 44

e) 42

**Explanation With Answer Key:**

**31). b)**

4, 12, 42, 196, 1005, 6066, 42511

$$4 \times 2 + (2)^2 = 12$$

$$12 \times 3 + (3)^2 = 45$$

$$45 \times 4 + (4)^2 = 196$$

$$196 \times 5 + (5)^2 = 1005$$

$$1005 \times 6 + (6)^2 = 6066$$

$$6066 \times 7 + (7)^2 = 42511$$

Hence, 42 is the wrong number

**32). d)**

7, 13, 25, 49, 97, 194, 385

$$7 \times 2 - 1 = 13$$

$$13 \times 2 - 1 = 25$$

$$25 \times 2 - 1 = 49$$

$$49 \times 2 - 1 = 97$$

$$97 \times 2 - 1 = 193$$

$$193 \times 2 - 1 = 385$$

Hence, 194 is the wrong number

**33). c)**

$$10, 15, 24, 35, 54, 75, 100$$

Hence, 35 is the wrong number

**34). d)**

$$2, 8, 32, 148, 765, 4626, 32431$$

$$2 \times 2 + 2^2 = 8$$

$$3 \times 8 + 3^2 = 33$$

$$4 \times 33 + 4^2 = 148$$

$$5 \times 148 + 5^2 = 765$$

$$6 \times 765 + 6^2 = 4626$$

$$7 \times 4626 + 7^2 = 32431$$

Hence, 32 is the wrong number.

**35). d)**

$$73, 57, 49, 44, 43, 42$$

$$73 - 57 = 16$$

$$57 - 49 = 8$$

$$49 - 45 = 4$$

45-43= 2

43-42=1

Differences between the consecutive numbers are in Geometric Progression (G.P)

Hence, 44 is the wrong number.

**36). 1527, 1185, 985, 865, 823, 817**

- a) 985
- b) 865
- c) 823
- d) 817
- e) 1185

**37). 110, 106, 204, 608, 2384, 11900**

- a) 2384
- b) 106
- c) 11900
- d) 608
- e) 204

**38). 71, 90, 128, 185, 261, 365**

- a) 365
- b) 128
- c) 185
- d) 90
- e) 261

**39). 8, 17.5, 64.75, 157.375, 561.3125, 1400.78125**

- a) 5
- b) 75
- c) 375
- d) 3125
- e) 78125

**40). 18, 36, 144, 864, 6912, 691020**

- a) 691020
- b) 144
- c) 864
- d) 6912
- e) 36

**Solution With Answer Key:**

**36). A)** The series is

$$1527 - (19^2 - 19) = 1185,$$

$$1185 - (15^2 - 15) = 975,$$

$$975 - (11^2 - 11) = 865,$$

$$865 - (7^2 - 7) = 823,$$

$$823 - (3^2 - 3) = 817$$

There should be 975 in place of 985.

**37). D)** The series is  $110 \times 1 - 4 = 106$ ,

$$106 \times 2 - 8 = 204, 204 \times 3 - 12 = 600, 600 \times 4 - 16 = 2384, 2384 \times 5 - 20 = 11900$$

There should be 600 in place of 608.

**38). A)** The series is

$71 + 19 = 90$ ,  $90 + 38 = 128$ ,  $128 + 57 = 185$ ,  $185 + 76 = 261$ ,  $261 + 95 = 356$  Hence there should be 356 in place of 365.

**39). C)** The series is

$$8 \times 2.5 - 2.5 = 17.5,$$

$$17.5 \times 3.5 + 3.5 = 64.75,$$

$$64.75 \times 2.5 - 2.5 = 159.375,$$

$$159.375 \times 3.5 + 3.5 = 561.3125,$$

$$561.3125 \times 2.5 - 2.5 = 1400.78125, \dots$$

Hence there should be 159.375 in place of 157.375.

**40). A)** The series is .

$$\begin{array}{cccccc} \times 2 & \times 4 & \times 6 & \times 8 & \times 10 \\ 18 & 36 & 144 & 864 & 6912 & 69120 \end{array}$$

Hence there should be 69120 in place of 691020

**41). 76, 75, 142, 399, 1530, 7535**

a) 399

b) 142

c) 75

d) 1530

e) 7535

**42). 84, 138, 192, 270, 348, 434**

a) 192

b) 138

c) 84

d) 348

e) 434

**43). 88, 88, 176, 530, 2112, 10560**

a) 88

b) 176

c) 2112

d) 105602

e) 530

**44). 2400, 1295, 625, 255, 80, 15**

a) 2400

b) 1295

c) 625

d) 80

e) 15

**45). 45, 62, 81, 102, 123, 150**

a) 45

b) 62

c) 102

d) 81

e) 123

**Solution With Answer Key:**

**41). D)** The series is

$$76 \times 1 - 1^3 = 75,$$

$$75 \times 2 - 2^3 = 142,$$

$$142 \times 3 - 3^3 = 399,$$

$$399 \times 4 - 4^3 = 1532,$$

$$1532 \times 5 - 5^3 = 7535, \dots$$

Hence there should be 1532 in place of 1530.

**42). A)** The series is

$$21 \times 4 = 84,$$

$$23 \times 6 = 138,$$

$$25 \times 8 = 200,$$

$$27 \times 10 = 270,$$

$$29 \times 12 = 348,$$

$$31 \times 14 = 434, \dots$$

Hence there should be 200 in place of 192.

Therefore the wrong number is 192.

**43). E)** The series is

	$\times 1$	$\times 2$	$\times 3$	$\times 4$	$\times 5$
	88	88	176	528	2112

Hence there should be 528 in place of 530.

Therefore the wrong number is 530.

**44). C)** The series is  $7^4 - 1 = 2400$ ,

$$6^4 - 1 = 1295, 5^4 - 1 = 624, 4^4 - 1 = 255, 3^4 - 1 = 80, 2^4 - 1 = 15, \dots$$

Hence there should be 624 in place of 625.

Therefore, the wrong number is 625.

**45). E)** The series is

Hence there should be 125 in place of 123.

Therefore the wrong number is 123.

$$\begin{array}{cccccc} +17 & +19 & +21 & +23 & +25 \\ \boxed{45} & \boxed{62} & \boxed{81} & \boxed{102} & \boxed{125} & \boxed{150} \end{array}$$

**46).** 127 470 686 811 875 885

- a) 470
- b) 686
- c) 811
- d) 885
- e) 875

**47).** 1296 652 328 169 88.5 48.25

- a) 328
- b) 169
- c) 5
- d) 1296
- e) 652

**48).** 2 5 15 131 530 13257

- a) 5
- b) 15
- c) 131
- d) 530

e) 13257

**49). 508 640 776 925 1092 1283**

a) 640

b) 508

c) 925

d) 1092

e) 1283

**50). 1325 714 318 90 -18 -54**

a) 714

b) 318

c) 90

d) -18

e) 1325

**Solution With Answer Key:**

**46).** The series is  $+7^3, +6^3, +5^3, +4^3, +3^3, +2^3, \dots$

The series is  $127 + 343 = 470, 470 + 216 = 686, 686 + 125 = 811, 811 + 64 = 875, 875 + 27 = 902,$

Therefore it should be 902 in place of 885.

**Answer: d)**

**47).** The series is  $\div 2 + 4$  (repeated)

$1296 \div 2 + 4 = 652, 652 \div 2 + 4 = 330, 330 \div 2 + 4 = 169, 169 \div 2 + 4 = 88.5, 88.5 \div 2 + 4 = 48.75, \dots$

Therefore it should be 330 in place of 328.

**Answer: a)**

**48).** The series is  $2 \times 1^2 + 3 = 5$ ,  $5 \times 2 + 4 = 14$ ,  $14 \times 3^2 + 5 = 131$ ,  $131 \times 4 + 6 = 530$ ,  $530 \times 5^2 + 7 = 13257$ ,.....

Therefore it should be 14 in place of 15.

**Answer: b)**

**49).** The series is  $508 + 131 = 639$ ,  $639 + 137 = 776$ ,  $776 + 149 = 925$ ,  $925 + 167 = 1092$ ,  $1092 + 191 = 1283$ , ...

Hence it ‘should be 639 in place of 640.

**Answer: a)**

**50).** The series is  $(11)^3 - 5 = 1326$ ,

$(9)^3 - 15 = 714$ ,  $(7)^3 - 25 = 318$ ,  $(5)^3 - 35 = 90$ ,  $(3)^3 - 45 = -18$ ,  $(1)^3 - 55 = -54$

Hence it should be 1326 in place of 1325.

**Answer: e)**

**51).**  $34/15$ ,  $76/35$ ,  $130/63$ ,  $202/99$ ,  $290/143$ ,  $394/195$

a)  $130/63$

b)  $76/35$

c)  $202/99$

d)  $290/143$

e)  $34/15$

**52).** 5930, 4900, 7056, 3969, 8281, 3136

a) 4900

b) 7056

c) 5930

d) 8281

e) 3136

**53).** 28, 55, 83, 138, 221, 360

a) 360

b) 55

c) 138

d) 221

e) 28

**54).** 85, 88, 182, 550, 2232, 11175

a) 182

b) 88

c) 85

d) 550

e) 2232

**55).** 46, 300, 430, 494, 526, 542

a) 526

b) 300

c) 494

d) 542

e) 46

#### **Solution With Answer Key:**

**51). B)** The series follows:

Numerator = 2 x Denominator + 4

So,  $\frac{76}{35}$  should be replaced by  $(35 \times 2 + 4) / 35 = 74/35$

**52). C)** The series is  $(77)^2$ ,  $(70)^2$ ,  $(84)^2$ ,  $(63)^2$ ,  $(91)^2$ ,  $(56)^2$ , ...

5929, 4900, 7056, 3969, 8281, 3136

Hence there should be 5929 in place of 5930

**53). A)** The series is

+27	+28	+55	+83	+138
28	55	83	138	221

Hence there should be 359 in place of 360.

**54). D)** The series is  $85 \times 1 + 3 = 88$ ,

$88 \times 2 + 6 = 182$ ,  $182 \times 3 + 9 = 555$ ,  $555 \times 4 + 12 = 2232$ ,  $2232 \times 5 + 15 = 11175$ ,....

Hence there should be 555 in place of 550.

**55). B)** Move from right to left. The series is

-16, -32, -64, -128, -256, .....

Hence there should be 302 in place of 300.

**56. 11 12 28 93 310 1965**

a) 12

b) 93

c) 1965

d) 310

e) 28

**57. 3 20 87 392 2025 12246**

a) 12246

b) 87

c) 392

d) 20

e) 2025

**58). 12 6.8 7.5 12.75 27.5 71.25**

a) 5

b) 5

c) 75

d) 25

e) 8

**59). 5 33 225 1345 6724 26881**

a) 225

b) 6724

c) 26881

d) 33

e) 225

**60). 225 256 289 344 361 400**

a) 225

b) 361

c) 344

d) 256

e) 400

### **Solution With Answer Key:**

**56). D)** The series is  $11 \times 1 + 1^2 = 12$ ,  $12 \times 2 + 2^2 = 28$ ,  $28 \times 3 + 3^2 = 93$ ,  $93 \times 4 + 4^2 = 388$ ,  $388 \times 5 + 5^2 = 1965$ , ...

There should be 388 in place of 310.

**57). A)**  $(3 + 7) \times 2 = 20$ ,  $(20 + 9) \times 3 = 87$ ,  $(87 + 11) \times 4 = 392$ ,  $(392 + 13) \times 5 = 2025$ ,  $(2025 + 15) \times 6 = 12240$ ,

Therefore, there should be 12240 in place of 12246.

**58). E)** The series is  $12 \times 0.5 + 0.5 = 6.5$ ,  $6.5 \times 1 + 1 = 7.5$ ,  $7.5 \times 1.5 + 1.5 = 12.75$ ,  $12.75 \times 2 + 2 = 27.5$ ,  $27.5 \times 2.5 + 2.5 = 71.25$ , ...

Therefore, there should be 6.5 in place of 6.8.

**59). B)** The series is  $5 \times 8 - 7 = 33$ ,  $33 \times 7 - 6 = 225$ ,  $225 \times 6 - 5 = 1345$ ,  $1345 \times 5 - 4 = 6721$ ,  $6721 \times 4 - 3 = 26881$ ,

Therefore, there should be 6721 in place of 6724.

**60). C)** The series is  $(15)^2 = 225$ ,  $(16)^2 = 256$ ,  $(17)^2 = 289$ ,  $(18)^2 = 324$ ,  $(19)^2 = 361$ ,  $(20)^2 = 400$ ,

Therefore there should be 324 in place of 344.

**61). 11, 12, 26, 81, 320, 1645**

- a) 11
- b) 12
- c) 81
- d) 320
- e) None of these

**62). 9, 26, 65, 126, 217, 342**

- a) 9
- b) 126
- c) 26
- d) 342
- e) None of these

**63). 18, 10, 11, 17.5, 40, 91, 274**

- a) 18
- b) 11
- c) 10
- d) 40
- e) None of these

**64). 12, 30, 99, 408, 2050, 12348**

- a) 12
- b) 30
- c) 2050
- d) 408
- e) None of these

**65). 50, 51, 47, 56, 45, 65, 29**

- a) 45
- b) 50
- c) 29
- d) 65
- e) None of these

**Solution With Answer Key:**

**61).** The series is

$$11*1 + 1 = 12$$

$$12*2 + 2 = 26$$

$$26*3 + 3 = 81$$

$$81 \times 4 + 4 = 328$$

$$328 \times 5 + 5 = 1645$$

so 320 is wrong

**Answer: d)**

**62).** Here the number follows the given rule

$$2^3 + 1, 3^3 - 1, 4^3 + 1, 5^3 - 1, 6^3 + 1, 7^3 - 1$$

so 126 is wrong number.

**Answer: d)**

**63).** Wrong Number: 40

Correct Number: 37

$$18 * 0.5 + 1 = 10$$

$$10 * 1 + 1 = 11$$

$$11 * 1.5 + 1 = 17.5$$

$$17.5 * 2 + 1 = 36$$

$$36 * 2.5 + 1 = 91$$

$$91 * 3 + 1 = 274$$

**Answer: d)**

**64).**  $(9 \times 1) + 3 = 12$

$$(12 \times 2) + 6 = 30$$

$$(30 \times 3) + 9 = 99$$

$$(99 \times 4) + 12 = 408$$

$$(408 \times 5) + 15 = 2055$$

$$(2055 \times 6) + 18 = 12348$$

**Answer: c)**

**65).**  $50 + 1^2 (1) = 51$

$51 - 2^2 (4) = 47$

$47 + 3^2 (9) = 56$

$56 - 4^2 (16) = 40$

$40 + 5^2 (25) = 65$

$65 - 6^2 (36) = 29$

**Answer: a)**

**66).** **190 166 145 128 112 100 91**

a) 100

b) 91

c) 128

d) 112

e) 145

**67).** **20480 5120 1280 320 100 20 5**

a) 5120

b) 320

c) 1280

d) 100

e) 5

**68).** **60 67 76 87 99 115**

a) 67

b) 87

c) 76

d) 115

e) 99

**69).** 7 8 18 57 228 1165 6996

a) 228

b) 57

c) 1165

d) 8

e) 18

**70).** 1 1 2 6 24 96 720

a) 720

b) 96

c) 24

d) 6

e) 2

**Solution With Answer Key:**

**66).** C) Subtracting 24, 21, 18, 15, 12.

**67).** D) Dividing previous number by 4.

**68).** E) Go on adding 7, 9, 11, 13, 15, ...

**69).** A) The series is:

$$7 \times 1 + 1 = 8$$

$$8 \times 2 + 2 = 18$$

$$18 \times 3 + 3 = 57$$

$$57 \times 4 + 4 = 232 \text{ not } 228$$

$$232 \times 5 + 5 = 1165$$

$$1165 \times 6 + 6 = 6996$$

228 is wrong.

**70). B)** The series is:

$$1 \times 1 = 1$$

$$1 \times 2 = 2$$

$$2 \times 3 = 6$$

$$6 \times 4 = 24$$

$$24 \times 5 = 120 \text{ not } 96$$

$$120 \times 6 = 720$$

96 is wrong

**71).** 2 12 36 81 150 252

1. 2
2. 81
3. 36
4. 150
5. 252

**72).** 5 16 27 44 65 90

1. 16
2. 5
3. 44
4. 65
5. 90

**73).** 4 2 0 -5 -12 -21

1. 0
2. 4

- 3. 2
- 4. -5
- 5. -21

**74). 101 123 149 179 218 251**

- 1. 251
- 2. 123
- 3. 179
- 4. 218
- 5. 101

**75). 9 21 45 101 211 433 879**

- 1. 21
- 2. 45
- 3. 211
- 4. 433
- 5. 101

**Solution With Answer Key:**

**71).** The series is  $1^2 \times 2 = 2$ ,  $2^2 \times 3 = 12$ ,  $3^2 \times 4 = 36$ ,  $4^2 \times 5 = 80$ ,  $5^2 \times 6 = 150$ ,  $6^2 \times 7 = 252$ .  
Hence, 81 should be replaced by 80.

**Answer: b)**

**72).** The series is  $1 \times (2 + 3) = 5$ ,  $2 \times (3 + 4) = 14$ ,  $3 \times (4 + 5) = 27$ ,  $4 \times (5 + 6) = 44$ ,  $5 \times (6 + 7) = 65$ ,  $6 \times (7 + 8) = 90$ .

Hence, 16 should be replaced by 14.

**Answer: a)**

**73).** The series is  $3^2 - 2^2 - 1^2 = 4$ ,

$$4^2 - 3^2 - 2^2 = 3,$$

$$5^2 - 4^2 - 3^2 = 0;$$

$$6^2 - 5^2 - 4^2 = -5;$$

$$7^2 - 6^2 - 5^2 = 12,$$

$$8^2 - 7^2 - 6^2 = -21.$$
 Hence, 2 should be replaced by 3.

**Answer: c)****74).** The series is  $10^2 + 1^2 + 0^2 = 101$ ,

$$11^2 + 1^2 + 1^2 = 123,$$

$$12^2 + 1^2 + 2^2 = 149,$$

$$13^2 + 1^2 + 3^2 = 179,$$

$$14^2 + 1^2 + 4^2 = 213,$$

$$15^2 + 1^2 + 5^2 = 251$$

Hence, 218 should be replaced by 213.

**Answer: d)****75).** The series is  $x+3, x+5, x+7, x+9, x+11\dots$ 

Hence, 45 should be replaced by 47.

**Answer: b)****76.** 2 11 38 197 1172 8227 65806

1. 11
2. 38
3. 197
4. 1172
5. 8227

**77.** 16 19 21 30 46 71 107

1. 19
2. 21
3. 30
4. 46
5. 71

**78.** 7 9 16 25 41 68 107 173

1. 107
2. 16

- 3. 41
- 4. 68
- 5. 25

**79). 4 2 3.5 7.5 26.25 118.125**

- 1. 125
- 2. 25
- 3. 5
- 4. 2
- 5. 5

**80). 16 4 2 1.5 1.75 1.875**

- 1. 875
- 2. 75
- 3. 5
- 4. 2
- 5. 4

**Solution With Answer Key:**

**76).** The series is based on the following pattern:

$$11 = 2 \times 3 + 5$$

$$38 = 11 \times 4 - 6$$

$$197 = 38 \times 5 + 7$$

$$1172 \neq 197 \times 6 - 8$$

1172 is wrong and it should be replaced by  $197 \times 6 - 8 = 1174$

**Answer: d)**

**77).** The series is based on the following pattern:

$$107 - 71 = 36 = 6^2$$

$$71 - 46 = 25 = 5^2$$

$$46 - 30 = 16 = 4^2$$

$$30 - 21 = 9 = 3^2$$

$$21 - 19 = 2 \neq 2^2$$

19 I should be replaced by 17 for which  $21 - 17 = 2^2$

**Answer: a)**

**78).** The series is based on the following pattern:

$$16 = 9 + 7$$

$$25 = 16 + 9$$

$$41 = 25 + 16$$

$$68 \neq 41 + 25$$

**Answer: d)**

**79).** The series is based on the following pattern:

Obviously, 3.5 is the wrong number which should be replaced by 3.

**Answer: c)**

**80).** The series is based on the following pattern:

Obviously, 1.75 is the wrong number which should be replaced by 1.5.

**Answer: b)**

**81).** 7    4    6    9    20    52.5    160.5

1. 6
2. 4
3. 20
4. 9
5. 5

**82).** 4    6    12    30    75    315    1260

1. 315
2. 75
3. 12
4. 6

5. 30

83). 3 4 13 38 87 166 289

1. 38
2. 13
3. 87
4. 166
5. 4

84). 4 5 9 29 111 556 3335

1. 5
2. 9
3. 29
4. 111
5. 556

85). 2 6 16 38 84 176 368

1. 6
2. 16
3. 38
4. 84
5. 176

**Solution With Answer Key:**

81). A)  $\times 1/2 + 1/2, \times 1 + 1, \times 1(1/2) + 1(1/2), \dots$

82). B)  $\times 1(1/2), \times 2, \times 2(1/2), \dots$

83). D)  $+1^2, +3^2, +5^2, \dots$

84). C)  $\times 1 + 1, \times 2 - 1, \times 3 + 1, \times 4 - 1, \dots$

85). E)  $\times 2 + 2, \times 2 + 4, \times 2 + 6, \dots$

86). 2 3 6 18 109 1944 209952

1. 3
2. 6
3. 18
4. 109

5. 1944

**87). 1 3 6 11 20 39 70**

- 1. 3
- 2. 39
- 3. 11
- 4. 20
- 5. 6

**88). 2 13 27 113 561 3369 23581**

- 1. 13
- 2. 27
- 3. 113
- 4. 561
- 5. 3369

**89). 50 51 47 56 42 65 29**

- 1. 51
- 2. 47
- 3. 56
- 4. 42
- 5. 65

**90). 3 9 23 99 479 2881 20159**

- 1. 9
- 2. 23
- 3. 99
- 4. 479
- 5. 2881

### Solutions

**86).D)**  $2 \times 3 = 6$ ;  $3 \times 6 = 18$ ;  $6 \times 18 = 108$ ;  $18 \times 108 = 1944$ ....

**87).B)**  $1 \times 2 + 1 = 3$ ;  $3 \times 2 + 0 = 6$ ;  $6 \times 2 - 1 = 11$ ;  $11 \times 2 - 2 = 20$ ;  $20 \times 2 - 3 = 37$ ....

**88).A)**  $2 \times 2 + 7 = 11$ ;  $11 \times 3 - 6 = 27$ ;  $27 \times 4 + 5 = 113$ ;  $113 \times 5 - 4 = 561$ .....

**89).D)**  $50 + 1^2 = 51$ ;  $51 - 2^2 = 47$ ;  $47 + 3^2 = 56$ ;  $56 - 4^2 = 40$ ;...

**90).C)**  $3 \times 2 + 3 = 9$ ;  $9 \times 3 - 4 = 23$ ;  $23 \times 4 + 5 = 97$ ;  $97 \times 5 - 6 = 479$ ...

**91). 22, 37, 52, 67, 84, 97**

1. 52
2. 84
3. 97
4. 67
5. None of these

**92). 11, 42, 39, 164, 525, 421, 749**

1. 164
2. 421
3. 525
4. 749
5. None of these

**93). 10, 41, 94, 1624, 2516, 3625, 4936**

1. 1624
2. 2516
3. 3625
4. 4936
5. None of these

**94). 4, 7, 13, 25, 49, 97, 153**

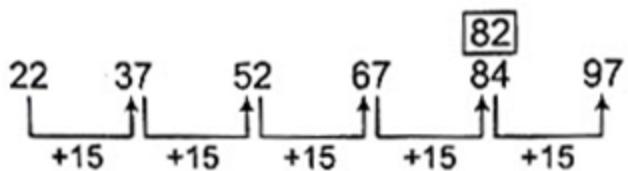
1. 25
2. 49
3. 97
4. 153
5. None of these

**95). 1 3 10 36 152 760 4632**

1. 3
2. 36
3. 4632
4. 760
5. None of these

#### **Solutions With Answer Key:**

**91).** The pattern is as follows



So, 84 is the incorrect term, it should be 82.

**Answer: b)**

**92).** In rest of the numbers, one digit is the square of the rest part of the number.

**Answer: b)**

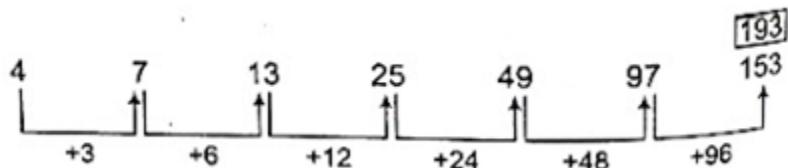
**93).** The pattern is as follows

$$10 = (1)^2 (0)^2, \quad 41 = (2)^2 (1)^2, \quad 94 = (3)^2 (2)^2, \quad 2516 = (5)^2 (4)^2, \quad 3625 = (6)^2 (5)^2$$

$4936 = (7)^2 (6)^2$ , but in 1624 it is not so.

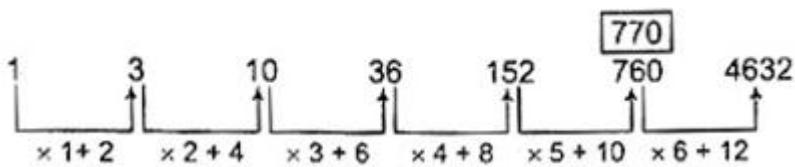
**Answer: d)**

**94).** The pattern is as follows



So, 153 is the wrong term in the series

**Answer: d)**



**95).** The pattern is as follows

From above, we can say that 760 is wrong in the given series. 770 should come in place of 760.

**96. 729 1331 2497 3375 4913**

1. 729
2. 1331
3. 3375
4. 2497
5. 4913

**97). 8 8.5 11.5 14 17**

1. 8
2. 5
3. 5
4. 14
5. 17

**98). 7 16 27 40 46**

1. 7
2. 16
3. 27
4. 40
5. 46

**99). 439 778 1456 2812 5624**

1. 439
2. 778
3. 1456
4. 2812
5. 5624

**100). 80 119 166 221 223**

1. 80
2. 119
3. 166
4. 192
5. 223

### **Solutions With Answer Key:**

**96).** The series is  $9^3$ ,  $11^3$ ,  $13^3$ ,  $15^3$ ,  $17^3$ , ...

Hence, there should be 2197 in place of 2497.

**Answer: d)**

**97).** The series is  $8 + 1.5 = 9.5$ ,  $9.5 + 2$

$$= 11.5$$
,  $11.5 + 2.5 = 14$ ,  $14 + 3 = 17$

Hence, there should be 9.5 in place of 8.5.

**Answer: b)**

**98).** The series is  $5 \times 1 + 2 = 7$ ,  $6 \times 2 + 4 =$

$$16$$
,  $7 \times 3 + 6 = 27$ ,  $8 \times 4 + 8 = 40$ ,  $9 \times 5 + 10$

= 55. Hence, there should be 55 in place of 46.

Alternate Method: +9, +11, +13, +15 ...

**Answer: e)**

**99).** The series is +339, +678, +1356, +2712, ...

Hence, there should be 5524 in place of 5624.

**Answer: e)**

**100).** The series is  $9^2 - 1$ ,  $11^2 - 2$ ,  $13^2 - 3$ ,  $15^2 - 4$ ,  $17^2 - 5$ , ...

Hence, there should be 284 in place of 223.

**Answer: e)**

# SIMPLIFICATION & APPROXIMATION QUESTIONS WITH SOLUTION

[ ] ADDA.COM

**Directions:** What approximate value should come in place of question mark (?) in the below given questions?

1.  $\sqrt{?} + \sqrt{1335} * 24 - 13.96 = 895$

- A) 1855
- B) 2025
- C) 1950
- D) 2125
- E) None

[View Answer](#)

#### Option B

**Solution:**

$$\sqrt{?} + 36 * 24 - 14 = 895$$

$$\sqrt{?} + 850 = 895$$

$$\sqrt{?} = 45$$

$$X = 45 * 45 = 2025.$$

2.  $(42.03\% \text{ of } 495.04 + 58.02\% \text{ of } 1200) / 9 = ?$

- A) 266.7
- B) 235.6
- C) 284.3
- D) 312.5
- E) None

[View Answer](#)

#### Option C

**Solution:**

$$(207+696)/9 = 284.3.$$

3.  $(9117.88 - 8021.85 + 903.92) * 12 = 1500 * ?$

- A) 15
- B) 18
- C) 24
- D) 22
- E) None

[View Answer](#)

#### Option A

**Solution:**

$$(9118-8022+904) * 12 = 1500 * ?$$

$$(2000 * 12) / 1500 = x$$

$$X=15.$$

4.  $\{(4/7 * 15/4) / (3.5 - 1.2)\}^2 = ?$

- A) 1.05
- B) 0.76
- C) 1.25
- D) 0.87
- E) None

[View Answer](#)

#### Option D

**Solution:**

$$[(60/28)/2.3]^2 = x$$

$$X = \{15/16\}^2 \Rightarrow 0.87.$$

5. If  $x=3.5$ ,  $y=4.5$ , then  $\{(y-x)(y-x)/y+x\} * xy = ?$

- A) 3
- B) 2
- C) 1.85
- D) 1.8
- E) None

[View Answer](#)

#### Option B

**Solution:**

$$\{(1*1)/8 * 15.75\} = x$$

$$X = 15.75/8 = 2.$$

6.  $(87.65\% \text{ of } 7159.89 - 68.99\% \text{ of } 8939.89) * 6.06 = (?)^2$

- A) 20
- B) 24
- C) 28
- D) 32
- E) None

[View Answer](#)**Option C****Solution:**

$$(6300 - 6168) * 6 = x^2$$

$$132 * 6 = x^2$$

$$792 = x^2$$

ie  $x=28$ .

7.  $35\frac{5}{7}\%$  of 6510 +  $77\frac{7}{9}\%$  of 5886 = ?%  
of 6126 + 50% of 5638  
 A) 49.5  
 B) 58.35  
 C) 54  
 D) 66.66  
 E) None

[View Answer](#)**Option D****Solution:**

$$250/7\% \text{ of } 6510 + 700/9\% \text{ of } 5886 = ?\% \text{ of } 6126 + 50\% \text{ of } 5638$$

$$2325 + 4578 - 2819 = x/100 * 6126 + 2819$$

$$(4084 * 100) / 6126 = x$$

$X=66.66$ .

8.  $854.926 - 562.005 - 115.98 = 22.6\% \text{ of } (?)$   
 A) 804  
 B) 795  
 C) 826  
 D) 844  
 E) None

[View Answer](#)**Option A****Solution:**

$$855 - 562 - 116 = 22.6\% \text{ of } x$$

$$177 = 22/100 * x$$

$X=804$ .

9.  $(750/45) / 11/781 * 114/95 = ?$   
 A) 1355  
 B) 1345  
 C) 1420  
 D) 1653  
 E) None

[View Answer](#)**Option C****Solution:**

$$750/45 * 781/11 * 114/95$$

$$=(10*71*36)/19$$

$$=1420.$$

10.  $15.33^2 - 12.94^2 + 22.06^2 - 35.65 = ?$   
 A) 511  
 B) 504  
 C) 631  
 D) 585  
 E) None

[View Answer](#)**Option B****Solution:**

$$15^2 - 13^2 + 22^2 - 35.65 = x$$

$$225 - 169 + 484 - 35.65 = x$$

$X=504$ .

**Directions : What will come in place of x in the following questions**

1.  $1404 \div x + 48 = (5.5\% \text{ of } 300) \times 10$   
 A) 18  
 B) 16  
 C) 13  
 D) 14  
 E) 12

[View Answer](#)**Option E**

2.  $2^2 \times 3^3 \times 1080 \div 15 = 6^x$   
 A) 6  
 B) 5  
 C) 7  
 D) 4  
 E) 3

[View Answer](#)**Option B****Solution:**

$$\begin{aligned}
 2^2 \times 3^3 \times 72 &= 6^x \\
 2^2 \times 3^3 \times (2 \times 6^2) &= 6^x \\
 2^3 \times 3^3 \times 6^2 &= 6^x \\
 6^3 \times 6^2 &= 6^x \\
 6^{(3+2)} &= 6^x \\
 3+2 &= x \\
 x &= 5
 \end{aligned}$$

3.  $48\% \text{ of } x - 14 \times 9 = 123 + 189 \div 3$
- A) 650  
B) 450  
C) 400  
D) 250  
E) 500

**View Answer****Option A**

4.  $34\% \text{ of } 250 + 1088 \div 16 = x$
- A) 143  
B) 178  
C) 165  
D) 153  
E) 138

**View Answer****Option D**

5.  $x \div 15 + 32\% \text{ of } 450 = 14\% \text{ of } 1500$
- A) 1080  
B) 990  
C) 860  
D) 900  
E) 1020

**View Answer****Option B**

6.  $66\% \text{ of } 450 - 1014 \div 13 - x = 14 \times 11$
- A) 65  
B) 43  
C) 55  
D) 52

E) 76

**View Answer****Option A**

7.  $2(4/5) \times 5(5/6) \times 5(1/7) = 5(1/4) \times x$
- A) 1  
B) 12  
C) 17  
D) 5  
E) 8

**View Answer****Option E****Solution:**

$$14/5 * 35/6 * 36/7 = 21/4 * x$$

8.  $45\% \text{ of } 280 - 4.5\% \text{ of } 40 = \sqrt{x} \times 276 \div 23$
- A) 144  
B) 25  
C) 81  
D) 64  
E) 225

**View Answer****Option C**

9.  $(x)^2 - 35\% \text{ of } 480 + 64 = 96 \times 2 \div 48$
- A) 14  
B) 10  
C) 12  
D) 11  
E) 13

**View Answer****Option C**

10.  $36\% \text{ of } 250 + \sqrt{3884} = x^2 - 209$
- A) 19  
B) 14  
C) 21  
D) 12

E) 18

C) 76  
D) 71  
E) 67**View Answer****Option A**

1.  $43\% \text{ of } 1400 - 36\% \text{ of } 250 - 18 \times 21 = x$   
 A) 153  
 B) 161  
 C) 165  
 D) 161  
 E) 134

**View Answer****Option E****Explanation:**

$$602 - 90 - 378 = 134$$

2.  $(82)^2 - (71)^2 - (34)^2 = x$   
 A) 376  
 B) 527  
 C) 493  
 D) 525  
 E) 428

**View Answer****Option B****Explanation:**

$$6724 - 5041 - 1156 = 527$$

3.  $\sqrt{6561} + 13 \times 32 - 784 \div 14 = x^2$   
 A) 31  
 B) 39  
 C) 21  
 D) 29  
 E) 19

**View Answer****Option C****Explanation:**

$$81 + 416 - 56 = 441$$

4.  $768 \div 12 + 1332 \div 18 - 728 \div 13 = x$   
 A) 82  
 B) 88

**View Answer****Option A****Explanation:**

$$64 + 74 - 56 = 82$$

5.  $65\% \text{ of } 260 + 14\% \text{ of } 450 - 12 \times 17 = x$   
 A) 19  
 B) 14  
 C) 47  
 D) 28  
 E) 34

**View Answer****Option D****Explanation:**

$$169 + 63 - 204 = 28$$

6.  $54\% \text{ of } 650 - 1050 \div 14 - 1118 \div 13 = x$   
 A) 159  
 B) 190  
 C) 173  
 D) 186  
 E) 163

**View Answer****Option B****Explanation:**

$$351 - 75 - 86 = 190$$

7.  $1105 \div 13 - 4.8\% \text{ of } 250 - 6.4\% \text{ of } 350 = x$   
 A) 61.4  
 B) 52.5  
 C) 43.8  
 D) 58.0  
 E) 50.6

**View Answer**

**Option E****Explanation:**

$$85 - 12 - 22.4 = 50.6$$

8.  $\sqrt{5476} - 5.6\% \text{ of } 250 - 4.8\% \text{ of } 450 = x$

- A) 43.9
- B) 37.7
- C) 23.2
- D) 29.5
- E) 38.4

**View Answer****Option E****Explanation:**

$$74 - 14 - 21.6 = 38.4$$

9.  $35\% \text{ of } 580 + 28\% \text{ of } 250 - 32\% \text{ of } 450 = x$

- A) 251
- B) 146
- C) 137
- D) 129
- E) 239

**View Answer****Option D****Explanation:**

$$203 + 70 - 144 = 129$$

10.  $35\% \text{ of } 420 - 26\% \text{ of } 150 - 18\% \text{ of } 350 = x$

- A) 45
- B) 23
- C) 37
- D) 32
- E) 28

**View Answer****Option A****Explanation:**

$$147 - 39 - 63 = 45$$

**Directions: What value should come in place of the x in the following questions?**

1.  $35\% \text{ of } 520 - 16\% \text{ of } 650 - 684 \div 19 = x$

- A) 46
- B) 25

C) 53

D) 42

E) 29

**View Answer****Option D****Explanation:**

$$182 - 104 - 36 = 42$$

2.  $35\% \text{ of } 420 - 2/9 \times 576 + 15\% \text{ of } 380 = x$

- A) 76
- B) 47
- C) 87
- D) 98
- E) 69

**View Answer****Option A****Explanation:**

$$147 - 128 + 57 = 76$$

3.  $26\% \text{ of } 750 - \sqrt{841} - 24\% \text{ of } 450 = x$

- A) 68
- B) 76
- C) 54
- D) 58
- E) 38

**View Answer****Option CD****Explanation:**

$$195 - 29 - 108 = 58$$

4.  $598 \div 26 + 32\% \text{ of } 750 - 24 \times 13 = x$

- A) -41
- B) -49
- C) -36
- D) -54
- E) -62

**View Answer****Option B****Explanation:**

$$23 + 240 - 312 = -49$$

5.  $13 \times 47 - \sqrt{7225} - 38\% \text{ of } 450 = x$   
 A) 212  
 B) 262  
 C) 355  
 D) 445  
 E) 337

**View Answer****Option C****Explanation:**

$$611 - 85 - 171 = 355$$

6.  $16\% \text{ of } 350 - 9 \times 26 + 523 = x$   
 A) 345  
 B) 225  
 C) 420  
 D) 315  
 E) 290

**View Answer****Option A****Explanation:**

$$56 - 234 + 523 = 345$$

7.  $3192 \div 56 + \sqrt{7569} - 16 \times 13 = x$   
 A) -25  
 B) -58  
 C) -43  
 D) -64  
 E) -38

**View Answer****Option D****Explanation:**

$$57 + 87 - 208 = -64$$

8.  $13 \times 34 - 1377 \div 51 - \sqrt{1369} = x$   
 A) 416  
 B) 324  
 C) 365  
 D) 405  
 E) 378

**View Answer****Option E****Explanation:**

$$442 - 27 - 37 = 378$$

9.  $28\% \text{ of } 650 - 1088 \div 17 = x$   
 A) 118  
 B) 156  
 C) 128  
 D) 141  
 E) 109

**View Answer****Option A****Explanation:**

$$182 - 64 = 118$$

10.  $48\% \text{ of } 650 - 1092 \div 13 = x$   
 A) 267  
 B) 411  
 C) 365  
 D) 392  
 E) 228

**View Answer****Option E****Explanation:**

$$312 - 84 = 228$$

**Directions: What value should come in place of the x in the following questions?**

1.  $15\% \text{ of } 920 - 26\% \text{ of } 550 + 408 \div 17 = x$   
 A) 16  
 B) 25  
 C) 28  
 D) 32  
 E) 19

**View Answer****Option E****Explanation:**

$$138 - 143 + 24 = 19$$

2.  $45\% \text{ of } 2020 - 3/7 \times 1092 - 15\% \text{ of } 420 = x$   
 A) 326  
 B) 147

- C) 287  
D) 378  
E) 239

[View Answer](#)

**Option D**

**Explanation:**

$$909 - 468 - 63 = 378$$

3.  $15\% \text{ of } 920 - \sqrt{841} + 25\% \text{ of } 580 = x$   
 A) 198  
 B) 276  
 C) 254  
 D) 146  
 E) 138

[View Answer](#)

**Option C**

**Explanation:**

$$138 - 29 + 145 = 254$$

4.  $621 \div 23 + 28\% \text{ of } 750 - 23 \times 13 = x$   
 A) -41  
 B) -48  
 C) -36  
 D) -54  
 E) -62

[View Answer](#)

**Option E**

**Explanation:**

$$27 + 210 - 299 = -62$$

5.  $27 \times 49 - \sqrt{7225} - 36\% \text{ of } 350 = x$   
 A) 1112  
 B) 1262  
 C) 1098  
 D) 1045  
 E) 1137

[View Answer](#)

**Option A**

**Explanation:**

$$1323 - 126 - 85 = 1112$$

6.  $26\% \text{ of } 3450 - 8 \times 34 - 645 = x$   
 A) -30  
 B) -25  
 C) -20  
 D) -15  
 E) -10

[View Answer](#)

**Option C**

**Explanation:**

$$897 - 272 - 645 = -20$$

7.  $3528 \div 56 + \sqrt{7569} - 14 \times 12 = x$   
 A) -25  
 B) -18  
 C) -23  
 D) -15  
 E) -28

[View Answer](#)

**Option B**

**Explanation:**

$$63 + 87 - 168 = -18$$

8.  $12 \times 39 - 1326 \div 51 - \sqrt{1369} = x$   
 A) 416  
 B) 324  
 C) 365  
 D) 405  
 E) 438

[View Answer](#)

**Option D**

**Explanation:**

$$468 - 26 - 37 = 405$$

9.  $24\% \text{ of } 750 - 1197 \div 19 = x$   
 A) 117  
 B) 156  
 C) 128  
 D) 141  
 E) 109

[View Answer](#)

**Option A****Explanation:**

$$180 - 63 = 117$$

10.  $78\% \text{ of } 650 - 41472 \div 48 \div 9 = x$

- A) 267
- B) 411
- C) 365
- D) 392
- E) 279

**View Answer****Option B****Explanation:**

$$507 - 96 = 411$$

**Directions: What value should come in place of the x in the following questions?**

1.  $\sqrt{3969} - 45\% \text{ of } 340 + 936 \div 13 = x$

- A) -18
- B) -15
- C) -34
- D) -24
- E) -6

**View Answer****Option E****Solution:**

$$63 - 153 + 72 = -18$$

2.  $882 \div 14 - 35\% \text{ of } 280 + 3380 \div 52 = x$

- A) 43
- B) 68
- C) 76
- D) 50
- E) 30

**View Answer****Option DE****Solution:**

$$63 - 98 + 65 = 30$$

3.  $\sqrt{(58\% \text{ of } 1450)} - 16\% \text{ of } 650 + \sqrt{7396} = x$

- A) 18
- B) 27
- C) 20

D) 11

E) 36

**View Answer****Option D****Solution:**

$$\sqrt{841} - 104 + 86 = 29 - 104 + 86 = 11$$

4.  $15 \times 23 - 18\% \text{ of } 1150 = x$

- A) 187
- B) 138
- C) 133
- D) 129
- E) 156

**View Answer****Option B****Solution:**

$$345 - 207 = 138$$

5.  $\sqrt{3364} - 1164 \div 12 + \sqrt{(42\% \text{ of } 1050)} = x$

- A) -11
- B) -14
- C) -9
- D) -25
- E) -18

**View Answer****Option E****Solution:**

$$58 - 97 + 21 = -18$$

6.  $1235 \div 19 - 15\% \text{ of } 580 + \sqrt{3364} = x$

- A) 11
- B) 17
- C) 36
- D) 25
- E) 46

**View Answer****Option C****Solution:**

$$65 - 87 + 58 = 36$$

7.  $15 \times 19 - 938 \div 14 - 12\% \text{ of } 250 = x$
- A) 188  
B) 125  
C) 119  
D) 225  
E) 203

**View Answer****Option A****Solution:**

$$285 - 67 - 30 = 188$$

8.  $13 \times 26 - 1196 \div 26 = x$
- A) 161  
B) 292  
C) 334  
D) 257  
E) 127

**View Answer****Option B****Solution:**

$$338 - 46 = 292$$

9. 59% of 1600 -  $1022 \div 14 = x$
- A) 789  
B) 529  
C) 913  
D) 871  
E) 676

**View Answer****Option D****Solution:**

$$944 - 73 = 871$$

10. 52% of 350 -  $\sqrt{6084} = x$
- A) 83  
B) 95  
C) 87  
D) 122  
E) 104

**View Answer****Option E****Solution:**

$$182 - 78 = 104$$

**Directions: What value should come in place of the x in the following questions?**

1. 25% of 720 +  $\sqrt{6084} - 12 \times 16 = x$
- A) 61  
B) 78  
C) 73  
D) 54  
E) 66

**View Answer****Option E****Solution:**

$$180 + 78 - 192 = 66$$

2. 45% of 360 +  $1008 \div 12 - 1248 \div 13 = x$
- A) 143  
B) 168  
C) 176  
D) 150  
E) 158

**View Answer****Option D****Solution:**

$$162 + 84 - 96 = 150$$

3.  $37^2 - 23 \times 46 - 26\% \text{ of } 350 = x$
- A) 278  
B) 240  
C) 220  
D) 217  
E) 236

**View Answer****Option C****Solution:**

$$1369 - 1058 - 91 = 220$$

4. 15% of 620 + 22% of 550 -  $1235 \div 19 = x$
- A) 187  
B) 149  
C) 133

- D) 129  
E) 156

**View Answer**

**Option B**

**Solution:**

$$93 + 121 - 65 = 149$$

5.  $\sqrt{3364} + 896 \div 14 - 15\% \text{ of } 580 = x$   
 A) 61  
 B) 84  
 C) 39  
 D) 45  
 E) 35

**View Answer**

**Option E**

**Solution:**

$$58 + 64 - 87 = 35$$

6.  $46\% \text{ of } 650 - 13 \times 26 + 1196 \div 26 = x$   
 A) 11  
 B) 7  
 C) 19  
 D) 25  
 E) 46

**View Answer**

**Option B**

**Solution:**

$$299 - 338 + 46 = 7$$

7.  $\sqrt{4624} + 1118 \div 13 - (13)^2 = x$   
 A) -15  
 B) -8  
 C) -19  
 D) -25  
 E) -21

**View Answer**

**Option A**

**Solution:**

$$68 + 86 - 169 = -15$$

8.  $\sqrt{3721} + \sqrt{5184} - \sqrt{5776} = x$   
 A) 61  
 B) 78  
 C) 34  
 D) 57  
 E) 27

**View Answer**

**Option D**

**Solution:**

$$61 + 72 - 76 = 57$$

9.  $\sqrt{(65\% \text{ of } 260 + 15\% \text{ of } 580)} + 1022 \div 14 = x$   
 A) 89  
 B) 329  
 C) 213  
 D) 165  
 E) 76

**View Answer**

**Option A**

**Solution:**

$$\sqrt{(169+87)} + 73 = 16 + 73 = 89$$

10.  $85\% \text{ of } 160 - 52\% \text{ of } 350 + 68 = x$   
 A) 83  
 B) 45  
 C) 67  
 D) 22  
 E) 34

**View Answer**

**Option D**

**Solution:**

$$136 - 182 + 68 = 22$$

**Directions: What value should come in place of the x in the following questions?**

1.  $12 \times 29 - 728 \div 13 - 32\% \text{ of } 350 = x$   
 A) 173  
 B) 191  
 C) 187  
 D) 176  
 E) 180

**View Answer****Option E****Explanation:**

$$348 - 56 - 112 = 180$$

2.  $1344 \div 14 + \sqrt{4761} - 18\% \text{ of } 650 = x$
- A) 39  
B) 43  
C) 52  
D) 48  
E) 34

**View Answer****Option D****Explanation:**

$$96 + 69 - 117 = 48$$

3.  $38\% \text{ of } 250 - 45\% \text{ of } 240 + 23 \times 17 = x$
- A) 378  
B) 234  
C) 256  
D) 287  
E) 309

**View Answer****Option A****Explanation:**

$$95 - 108 + 391 = 378$$

4.  $12 \times 17 - 819 \div 13 - 1134 \div 18 = x$
- A) 85  
B) 78  
C) 69  
D) 63  
E) 92

**View Answer****Option B****Explanation:**

$$204 - 63 - 63 = 78$$

5.  $1105 \div 13 + \sqrt{1849} - 12\% \text{ of } 250 = x$
- A) 57  
B) 45  
C) 98  
D) 87

**E) 81****View Answer****Option C****Explanation:**

$$85 + 43 - 30 = 98$$

6.  $48\% \text{ of } 650 - 1105 \div 13 - 13 \times 28 = x$
- A) -103  
B) -96  
C) -128  
D) -212  
E) -137

**View Answer****Option e****Explanation:**

$$312 - 85 - 364 = -137$$

7.  $16 \times 23 - 546 \div 14 - 15\% \text{ of } 520 = x$
- A) 288  
B) 251  
C) 290  
D) 213  
E) 237

**View Answer****Option b****Explanation:**

$$368 - 39 - 78 = 251$$

8.  $52\% \text{ of } 1050 - \sqrt{4761} - 1248 \div 13 = x$
- A) 381  
B) 254  
C) 288  
D) 309  
E) 348

**View Answer****Option A****Explanation:**

$$546 - 69 - 96 = 381$$

9.  $1204 \div 14 + 768 \div 12 - \sqrt{1764} = x$
- A) 116

- B) 91  
C) 98  
D) 123  
E) 108

[View Answer](#)

**Option E**

**Explanation:**

$$86 + 64 - 42 = 108$$

10.  $45\% \text{ of } 240 + 23^2 - 52\% \text{ of } 1350 = x$

- A) -23  
B) -98  
C) -43  
D) -65  
E) -56

[View Answer](#)

**Option D**

**Explanation:**

$$108 + 529 - 702 = -65$$

**Directions: What value should come in place of the x in the following questions?**

1.  $45\% \text{ of } 360 + \sqrt{6084} - 9 \times 23 = x$

- A) 39  
B) 56  
C) 19  
D) 27  
E) 33

[View Answer](#)

**Option E**

**Explanation:**

$$162 + 78 - 207 = 33$$

2.  $38\% \text{ of } 350 - 936 \div 13 + 672 \div 56 = x$

- A) 73  
B) 89  
C) 53  
D) 68  
E) 41

[View Answer](#)

**Option A**

**Explanation:**

$$133 - 72 + 12 = 73$$

3.  $\sqrt{2025} + 1575 \div 63 - 46 = x$

- A) 27  
B) 35  
C) 24  
D) 40  
E) 14

[View Answer](#)

**Option C**

**Explanation:**

$$45 + 25 - 46 = 24$$

4.  $48 \times 9 - 15\% \text{ of } 620 - 85\% \text{ of } 360 = x$

- A) 50  
B) 33  
C) 26  
D) 61  
E) 44

[View Answer](#)

**Option B**

**Explanation:**

$$432 - 93 - 306 = 33$$

5.  $26\% \text{ of } 450 - (25\% \text{ of } 6300) \div 35 = x$

- A) 99  
B) 86  
C) 80  
D) 77  
E) 72

[View Answer](#)

**Option E**

**Explanation:**

$$117 - (1575)/35 = 117 - 45 = 72$$

6.  $\sqrt{2209} - 45\% \text{ of } 340 + 1204 \div 14 = x$

- A) -50  
B) -10  
C) -40  
D) -30  
E) -20

[View Answer](#)**Option E****Explanation:**

$$47 - 153 + 86 = -20$$

7. 35% of  $280 - 936 \div 13 + 3380 \div 52 = x$
- A) 85  
B) 91  
C) 103  
D) 149  
E) 81

[View Answer](#)**Option B****Explanation:**

$$98 - 72 + 65 = 91$$

8.  $\sqrt{1849} - 48\% \text{ of } 150 + 45\% \text{ of } 240 = x$
- A) 105  
B) 98  
C) 83  
D) 79  
E) 61

[View Answer](#)**Option D****Explanation:**

$$43 - 72 + 108 = 79$$

9.  $25\% \text{ of } 620 - 65\% \text{ of } 380 + 97 = x$
- A) 5  
B) 8  
C) 6  
D) 4  
E) 9

[View Answer](#)**Option A****Explanation:**

$$155 - 247 + 87 = 5$$

10.  $\sqrt{2916} + 13 \times 28 - 16 \times 24 = x$
- A) 55  
B) 58  
C) 34  
D) 49

[View Answer](#)[View Answer](#)**Option C****Explanation:**

$$54 + 364 - 384 = 34$$

**Directions:** What value should come in place of the x in the following questions?

1.  $25\% \text{ of } 620 + 35\% \text{ of } 540 - 65\% \text{ of } 380 = x$
- A) 108  
B) 56  
C) 149  
D) 97  
E) 83

[View Answer](#)**Option D****Explanation:**

$$155 + 189 - 247 = 97$$

2.  $\sqrt{2209} + \sqrt{2401} - \sqrt{3969} = x$
- A) 45  
B) 29  
C) 33  
D) 38  
E) 41

[View Answer](#)**Option C****Explanation:**

$$47 + 49 - 63 = 33$$

3.  $1204 \div 14 - 45\% \text{ of } 340 + 882 \div 14 = x$
- A) 7  
B) 5  
C) -6  
D) 10  
E) -4

[View Answer](#)**Option E****Explanation:**

$$86 - 153 + 63 = -4$$

4.  $23^2 - 19^2 - 35\% \text{ of } 280 = x$   
 A) 70  
 B) 83  
 C) 76  
 D) 67  
 E) 64

**View Answer****Option A****Explanation:**

$$529 - 361 - 98 = 70$$

5.  $22\% \text{ of } 650 - 936 \div 13 + 189 = x$   
 A) 249  
 B) 236  
 C) 280  
 D) 277  
 E) 260

**View Answer****Option E****Explanation:**

$$143 - 72 + 189$$

6.  $523 - 65\% \text{ of } 360 - 45\% \text{ of } 520 = x$   
 A) 55  
 B) 58  
 C) 43  
 D) 49  
 E) 61

**View Answer****Option A****Explanation:**

$$523 - 234 - 234 = 55$$

7.  $35\% \text{ of } 420 - 3380 \div 52 = x$   
 A) 57  
 B) 82  
 C) 65  
 D) 61  
 E) 77

**View Answer****Option B****Explanation:**

$$147 - 65 = 82$$

8.  $\sqrt{2916} - 45\% \text{ of } 240 + 35\% \text{ of } 360 = 18x$   
 A) 3.5  
 B) 3  
 C) 4  
 D) 4.5  
 E) 6

**View Answer****Option C****Explanation:**

$$54 - 108 + 126 = 72 = 18*4$$

9.  $13 \times 28 - \sqrt{1849} - 938 \div 14 = x$   
 A) 230  
 B) 248  
 C) 288  
 D) 276  
 E) 254

**View Answer****Option E****Explanation:**

$$364 - 43 - 67 = 254$$

10.  $16 \times 24 - 1020 \div 12 - 48\% \text{ of } 150 = x$   
 A) 198  
 B) 265  
 C) 227  
 D) 277  
 E) 182

**View Answer****Option C****Explanation:**

$$384 - 85 - 72 = 227$$

**Directions: What approximate value should come in place of the x in the following questions?**

1.  $36.06\% \text{ of } 449.95 + \sqrt{3140} - 17.96 \times 12.92$   
 A) -34  
 B) -12  
 C) -36  
 D) -16  
 E) -23

**View Answer**

**Option D****Solution:**

$$162 + 56 - 234 = -16$$

C) 89

D) 76

E) 70

2.  $\sqrt{2900} + 126.07\% \text{ of } 350.09 - 23.06 \times 15.93 = x$   
 A) 153  
 B) 187  
 C) 126  
 D) 118  
 E) 134

**View Answer****Option C****Solution:**

$$53 + 441 - 368 = 126$$

3.  $\sqrt{(52.04\% \text{ of } 650.002 + 88.902 \times 16.08)} - 495 \div 13$   
 A) 17  
 B) 11  
 C) 10  
 D) 8  
 E) 4

**View Answer****Option E****Solution:**

$$\sqrt{(338+1424)} - 38 = 42 - 38 = 4$$

4.  $830 \div 16 - 34.09\% \text{ of } 450.03 + 44.99\% \text{ of } 280 = x$   
 A) 25  
 B) 29  
 C) 37  
 D) 33  
 E) 40

**View Answer****Option A****Solution:**

$$52 - 152 + 126 = 25$$

5.  $825 \div 14 - 635 \div 12.02 + 20.09\% \text{ of } 370 = x$   
 A) 48  
 B) 80

**View Answer****Option B****Solution:**

$$59 - 53 + 74 = 80$$

6.  $\sqrt{6090} + 47.98\% \text{ of } 550.09 - 52.05\% \text{ of } 349.90 = x$   
 A) 160  
 B) 170  
 C) 180  
 D) 130  
 E) 150

**View Answer****Option A****Solution:**

$$78 + 264 - 182 = 160$$

7.  $46.02\% \text{ of } 150.099 - 7130 \div 12.009 \div 8.98 = x$   
 A) 5  
 B) 0.5  
 C) 3  
 D) 8  
 E) 11

**View Answer****Option C****Solution:**

$$69 - 66 = 3$$

8.  $765 \div 13.02 \times 15.09 - (12+14.009)\% \text{ of } 649.93 - 239.09 = x$   
 A) 477  
 B) 428  
 C) 376  
 D) 419  
 E) 391

**View Answer**

**Option A****Solution:**

$$885 - 169 - 239 = 477$$

9.  $85.09\% \text{ of } 259.99 - 11.88 \times 17.09 + 85.918 = x$   
 A) 96  
 B) 189  
 C) 86  
 D) 103  
 E) 116

**View Answer****Option D****Solution:**

$$221 - 204 + 86 = 103$$

10.  $18.09 \times 14.87 - 14 \times 13 - \sqrt{2400} = x$   
 A) 28  
 B) 41  
 C) 36  
 D) 45  
 E) 39

**View Answer****Option E****Solution:**

$$270 - 182 - 49 = 39$$

**Directions: What approximate value should come in place of the x in the following questions?**

1.  $26.02 \times 36.99 + 3200 \div 68 - 36\% \text{ of } 650 = ?$   
 A) 775  
 B) 561  
 C) 265  
 D) 761  
 E) 628

**View Answer****Option A**

2.  $\sqrt{2800} + 38.09\% \text{ of } 749.99 - 35\% \text{ of } 860.009 = ?$   
 A) 26  
 B) 77  
 C) 37  
 D) 25  
 E) 28

**View Answer****Option C**

3.  $3020 \div 9 \div 6 + 66\% \text{ of } 250 - \sqrt{6245} = ?$   
 A) 284  
 B) 398  
 C) 276  
 D) 233  
 E) 142

**View Answer****Option E**

4.  $2050 \div 89 + 162\% \text{ of } 350 - 65\% \text{ of } 360 = ?$   
 A) 273  
 B) 356  
 C) 176  
 D) 271  
 E) 367

**View Answer****Option B**

5.  $56^2 + 17.89 \times 29.09 - 5960 \div 23 = ?$   
 A) 3469  
 B) 3399  
 C) 2887  
 D) 3137  
 E) 2060

**View Answer**

**Option B**

6.  $46.05\% \text{ of } 350.009 + 885 \div 13 - 12.99 \times 16.09 = x$

- A) 19
- B) 11
- C) 33
- D) 26
- E) 21

**View Answer****Option E**

7.  $\sqrt{1160} - 27.89\% \text{ of } 250.009 + 670 \div 12 = x$

- A) 31
- B) 12
- C) 23
- D) 20
- E) 38

**View Answer****Option D**

8.  $47.99\% \text{ of } 450 - 1120 \div 26 - 18.04\% \text{ of } 649.93 = x$

- A) 13
- B) 77
- C) 43
- D) 56
- E) 47

**View Answer****Option C**

9.  $13.09 \times 28.909 - 32\% \text{ of } 350 - \sqrt{7400} = x$

- A) 151
- B) 179
- C) 137
- D) 141

**E) 119****View Answer****Option B**

10.  $15 \times 39.09 - 35.08\% \text{ of } 1119.99 - 129.09 = x$

- A) 69
- B) 56
- C) 64
- D) 42
- E) 48

**View Answer****Option C**

1.  $59\% \text{ of } 1600 + 26\% \text{ of } 450 - 17 \times 24 = x$

- A) 653
- B) 561
- C) 265
- D) 761
- E) 628

**View Answer****Option A**

2.  $(86)^2 - (73)^2 - (36)^2 = x$

- A) 376
- B) 771
- C) 893
- D) 725
- E) 628

**View Answer****Option B**

3.  $\sqrt{6561} + 12 \times 29 - 1248 \div 13 = x$
- A) 284  
B) 398  
C) 276  
D) 333  
E) 319

**View Answer****Option D**

4.  $792 \div 12 + 1134 \div 18 - 728 \div 13 = x$
- A) 73  
B) 81  
C) 76  
D) 71  
E) 67

**View Answer****Option A**

5.  $85\% \text{ of } 460 - 24\% \text{ of } 350 - 13 \times 19 = x$
- A) 69  
B) 54  
C) 87  
D) 37  
E) 60

**View Answer****Option E**

6.  $74\% \text{ of } 250 - 826 \div 14 - 819 \div 13 = x$
- A) 59  
B) 81  
C) 73  
D) 86  
E) 63

**View Answer****Option E**

7.  $5.6\% \text{ of } 250 + 6.4\% \text{ of } 350 + 4.8\% \text{ of } 450 = x$
- A) 61.4  
B) 52.5  
C) 43.8  
D) 58.0  
E) 48.6

**View Answer****Option D**

8.  $4.8\% \text{ of } 250 + 1105 \div 13 - \sqrt{5476} = x$
- A) 43  
B) 37  
C) 23  
D) 29  
E) 47

**View Answer****Option C**

9.  $15\% \text{ of } 620 + 18\% \text{ of } 350 - 18\% \text{ of } 650 = x$
- A) 51  
B) 46  
C) 37  
D) 41  
E) 39

**View Answer****Option E**

10.  $2(1/3) + 4(2/5) - 5(4/15) = x$
- A) 11/15  
B) 8/15  
C) 1(7/15)  
D) 1 8/15

E)  $1\frac{3}{5}$ D) 78  
E) 51**View Answer****Option C**

1.  $18\% \text{ of } 1150 + 12\% \text{ of } 250 - 35\% \text{ of } 420 = x$   
 A) 108  
 B) 90  
 C) 92  
 D) 77  
 E) 95

**View Answer****Option B**

2.  $85^2 - 76^2 - \sqrt{7569} = x$   
 A) 1362  
 B) 1287  
 C) 1203  
 D) 1328  
 E) 1376

**View Answer****Option A**

3.  $58\% \text{ of } 650 + 897 \div x - 62\% \text{ of } 750 = -19$   
 A) 21  
 B) 13  
 C) 14  
 D) 16  
 E) 23

**View Answer****Option B**

4.  $1344 \div 14 - 16\% \text{ of } 650 + \sqrt{7396} = x$   
 A) 46  
 B) 87  
 C) 67

**View Answer****Option D**

5.  $x\% \text{ of } 6200 + 12 \times 26 - 58\% \text{ of } 1450 = 649$   
 A) 41  
 B) 19  
 C) 36  
 D) 29  
 E) 21

**View Answer****Option B**

6.  $\sqrt{x} + 18\% \text{ of } 250 - 15\% \text{ of } 960 = -25$   
 A) 5476  
 B) 5824  
 C) 5762  
 D) 5776  
 E) 5526

**View Answer****Option A**

7.  $-\sqrt{7921} + 1102 \div 19 + 15 \times 23 = x$   
 A) 261  
 B) 256  
 C) 314  
 D) 362  
 E) 357

**View Answer****Option C**

8.  $85\% \text{ of } x - 4344 \div 12 - 13 \times 28 = 90$   
 A) 580  
 B) 380  
 C) 620  
 D) 960

E) 240

D) 328  
E) 376**View Answer****Option D**

9.  $48\% \text{ of } 650 - 1105 \div 13 - 45\% \text{ of } 240 = 7x$   
 A) -48  
 B) 22  
 C) 13  
 D) 17  
 E) -21

**View Answer****Option D**

10.  $52\% \text{ of } 1050 - 14 \times 29 - 1164 \div 12 = x$   
 A) 29  
 B) 38  
 C) 45  
 D) 41  
 E) 43

**View Answer****Option E**

**Directions: What value should come in place of the x in the following questions?**

1.  $65\% \text{ of } 1260 + \sqrt{4489} - 16 \times 27 = x$   
 A) 498  
 B) 454  
 C) 392  
 D) 377  
 E) 325

**View Answer****Option B**

2.  $26 \times 19 + 23^2 - 52\% \text{ of } 1350 = x$   
 A) 321  
 B) 287  
 C) 203

**View Answer****Option A**

3.  $12\% \text{ of } 650 - 728 \div x + 24\% \text{ of } 450 = 130$   
 A) 18  
 B) 13  
 C) 14  
 D) 16  
 E) 17

**View Answer****Option B**

4.  $1344 \div 14 \div 4 \times 34 - 35\% \text{ of } 540 - 45\% \text{ of } 1320 = x$   
 A) 46  
 B) 87  
 C) 67  
 D) 33  
 E) 51

**View Answer****Option D**

$1344 \div 14 \div 4 \times 34 - 35\% \text{ of } 540 - 45\% \text{ of } 1320 = x$   
 $816 - 189 - 594 = 33$

5.  $\sqrt{x} \times 12 - 26\% \text{ of } 1650 - 13 \times 34 = -19$   
 A) 2401  
 B) 2119  
 C) 3136  
 D) 5329  
 E) 5041

**View Answer****Option E**

6.  $882 \div 14 + 1248 \div 13 - 1392 \div 16 = x\% \text{ of } 450$

- A) 16  
B) 12  
C) 18  
D) 22  
E) 26

- B) 38  
C) 45  
D) 41  
E) 34

[View Answer](#)

**Option A**

7.  $\sqrt{3136} + \sqrt{3844} - \sqrt{3481} = x$

- A) 61  
B) 56  
C) 59  
D) 62  
E) 57

[View Answer](#)

**Option C**

8. 28% of  $x - 1105 \div 13 + 156 \div 6 = 67$

- A) 550  
B) 350  
C) 650  
D) 450  
E) 250

[View Answer](#)

**Option D**

9.  $\sqrt{2401} + \sqrt{4761} - 18\% \text{ of } 650 = x$

- A) -1  
B) 2  
C) 3  
D) -2  
E) 1

[View Answer](#)

**Option E**

10. 38% of 250 - 85% of 560 + 13 × x = 61

- A) 29

[View Answer](#)

**Option E**

**Directions:** What value should come in place of the x in the following questions?

1. 36% of 1350 - 15 × 19 - 15% of 260 = x  
A) 128  
B) 162  
C) 139  
D) 117  
E) 108

[View Answer](#)

**Option B**

2.  $1615 \div 19 - 12 \times 27 + 45\% \text{ of } 1240 = x$   
A) 158  
B) 276  
C) 319  
D) 483  
E) 349

[View Answer](#)

**Option C**

3.  $53^2 - 65\% \text{ of } 1380 - 948 \div x = 1833$   
A) 18  
B) 4  
C) 15  
D) 12  
E) 24

[View Answer](#)

**Option D**  
**Solution:**

4.  $26\% \text{ of } 850 - 18\% \text{ of } 450 - \sqrt{4356} = x$   
 A) 99  
 B) 56  
 C) 87  
 D) 72  
 E) 74

**View Answer****Option E**

5.  $\sqrt{x} \% \text{ of } 350 + 52\% \text{ of } 450 - 23 \times 17 = 130$   
 A) 3758  
 B) 6724  
 C) 5636  
 D) 8542  
 E) 4728

**View Answer****Option B**

6.  $46^2 - 1638 \div x - 14 \times 29 = 945 + 639$   
 A) 13  
 B) 24  
 C) 23  
 D) 29  
 E) 9

**View Answer****Option A**

7.  $32\% \text{ of } x - 12 \times 17 - 546 \div 14 = -35$   
 A) 520  
 B) 410  
 C) 390  
 D) 650  
 E) 330

**View Answer****Option D**

8.  $\sqrt{(42\% \text{ of } 1050)} + 768 \div 16 - 636 \div 12 = x$   
 A) 19  
 B) 17  
 C) 16  
 D) 18  
 E) 13

**View Answer****Option C**

9.  $(9.6\% \text{ of } 250 + 4.8\% \text{ of } 750)\% \text{ of } 1920 - 897 = x$   
 A) 217  
 B) 206  
 C) 157  
 D) 255  
 E) 115

**View Answer****Option D**

10.  $\sqrt{1156} + \sqrt{3025} + x\% \text{ of } 650 = 167$   
 A) 22  
 B) 28  
 C) 16  
 D) 12  
 E) 26

**View Answer****Option D**

**Directions: What value should come in place of the x in the following questions?**

1.  $26\% \text{ of } 650 + \sqrt{784} - 16 \times 13 = x$   
 A) -28  
 B) -11  
 C) -39  
 D) -17  
 E) -8

**View Answer**

**Option B**

1.  $569 - 35\% \text{ of } 460 - 25 \times 14 = x$   
 A) 58  
 B) 76  
 C) 35  
 D) 83  
 E) 49

**View Answer****Option A**

2.  $\sqrt{1156} \% \text{ of } 650 - 18 \times 23 + 2686 \div 17 = x$   
 A) -39  
 B) -24  
 C) -35  
 D) -44  
 E) -54

**View Answer****Option C****Solution:**

3.  $x\% \text{ of } 350 + \sqrt{1369} - 35\% \text{ of } 240 = 219$   
 A) 99  
 B) 56  
 C) 87  
 D) 72  
 E) 76

**View Answer****Option E**

4.  $19 \times 28 + 1638 \div 26 - 36\% \text{ of } x = 181$   
 A) 1750  
 B) 1150  
 C) 1630  
 D) 1540  
 E) 1720

**View Answer****Option B**

5.  $2898 \div x - 45\% \text{ of } 420 + 19 \times 13 = 16\% \text{ of } 1150$   
 A) 57  
 B) 34  
 C) 23  
 D) 29  
 E) 62

**View Answer****Option C**

6.  $18\% \text{ of } 350 + 39 \times 16 - 3760 \div 16 = x$   
 A) 527  
 B) 414  
 C) 398  
 D) 452  
 E) 334

**View Answer****Option D**

7.  $51^2 - 56\% \text{ of } 750 - 629 = x$   
 A) 1924  
 B) 1776  
 C) 1552  
 D) 1822  
 E) 1628

**View Answer****Option C**

8.  $\sqrt{2916} + 38\% \text{ of } 450 - 12 \times x = 21$   
 A) 17  
 B) 26  
 C) 7  
 D) 33  
 E) 15

**View Answer**

**Option A**

9.  $\sqrt{3969} + \sqrt{4489} + x\% \text{ of } 650 = 338$   
 A) 56  
 B) 28  
 C) 36  
 D) 32  
 E) 44

**View Answer****Option D**

1. 70% of 620 - ?% of 850 = 204  
 A) 21.056  
 B) 24.152  
 C) 27.056  
 D) 23.144  
 E) 22.264

**View Answer****Option C****Solution:**

$$\begin{aligned} 434 - ?\% \text{ of } 850 &= 204 \\ \Rightarrow 230 &= ?\% \text{ of } 850 \\ \Rightarrow (230 * 100) / 850 &= ? \\ \Rightarrow 27.056 &= ? \end{aligned}$$

2.  $80^{3.7} / 80^{1.22} = 80^?$   
 A) 4.22  
 B) 4.02  
 C) 2.55  
 D) 3.65  
 E) 2.48

**View Answer****Option E****Solution:**

$$\begin{aligned} 80^{(3.7-1.22)} &= 80^? \\ \Rightarrow ? &= 2.48 \end{aligned}$$

3. 15.6% of 525 - 8% of ? = 15.52  
 A) 775.23  
 B) 829.75  
 C) 785.15  
 D) 825.13  
 E) 880.32

**View Answer****Option B****Solution:**

$$81.9 - 15.52 = (66.38 * 100) / 8 = 829.75 = ?$$

4.  $8520 + 210 - 9783 + 1225 = ? * 16$   
 A) 13.55  
 B) 11.23  
 C) 10.75  
 D) 12.15  
 E) 10.19

**View Answer****Option C****Solution:**

$$\begin{aligned} 172 &= ? * 16 \\ \Rightarrow ? &= 10.75 \end{aligned}$$

5.  $4(1/6) + 3(1/7) - 2(4/6) + 5(2/7) = ?$   
 A)  $6(12/17)$   
 B)  $9(13/14)$   
 C)  $8(11/13)$   
 D)  $7(11/12)$   
 E)  $8(12/15)$

**View Answer****Option B****Solution:**

$$\begin{aligned} 25/6 + 22/7 - 16/6 + 37/7 &= 9/6 + 59/7 \\ &= (63 + 354)/42 \\ &= 9(13/14) \end{aligned}$$

6.  $56421 - 32047 + 29500 - 890 = ? + 5720$   
 A) 47,264  
 B) 42,125  
 C) 42,500  
 D) 43,000  
 E) 41,230

**View Answer****Option A****Solution:**

$$\begin{aligned} 85,921 - 32,937 &= ? + 5720 \\ &= 52,984 - 5720 = 47,264 \end{aligned}$$

7. 33.45% of 720 = ? - 3504  
 A) 3,256.45

- B) 3,744.84  
 C) 3,214.51  
 D) 3,255.45  
 E) 3,254.64

[View Answer](#)

**Option B**

**Solution:**

$$240.84 = ? - 3504$$

$$\Rightarrow ? = 3,744.84$$

8.  $\sqrt{?} + 20 = \sqrt{2704}$   
 A) 1144  
 B) 1024  
 C) 1150  
 D) 1020  
 E) 1200

[View Answer](#)

**Option B**

**Solution:**

$$\sqrt{?} = 52 - 20 = 32$$

$$? = 1024$$

9.  $(81)^6 * (3)^2 / (27)^7 = (3)^{?}$   
 A) 6  
 B) 9  
 C) 4  
 D) 7  
 E) 5

[View Answer](#)

**Option E**

**Solution:**

$$(3)^{24} * (3)^{-19} = (3)^{?}$$

$$= 24 - 19 = 5$$

10.  $(5/8)*5664 + (2/11)*6457 = ?$   
 A) 4455  
 B) 4125  
 C) 4714  
 D) 4500  
 E) 4214

[View Answer](#)

**Option C**

**Solution:**

$$(5/8)*5664 + (2/11)*6457$$

$$= 5 * 708 + 2 * 587$$

$$= 3540 + 1174 = 4714$$

**Directions: What approximate value should come in place of the x in the following questions? (You are expected to do approximations)**

1.  $60.09\% \text{ of } 2535.112 + 831.94 \div 13 - 34^2 = x$   
 A) 303  
 B) 345  
 C) 388  
 D) 457  
 E) 429

[View Answer](#)

**Option E**

**Solution:**

$$60\% \text{ of } 2535 = 1521$$

$$832 \div 13 = 64$$

$$- 34^2 = - 1156$$

2.  $\sqrt{1765} + 1010 \div 14 - 64\% \text{ of } 250 = x$   
 A) -46  
 B) -26  
 C) 32  
 D) -33  
 E) 39

[View Answer](#)

**Option A**

**Solution:**

$$\sqrt{1765} = 42$$

$$1010 \div 14 = 72$$

$$- 64\% \text{ of } 250 = 160$$

3.  $795.009 \div 15.234 + 768.123 \div 12.099 + 63.98 \div 4 - 1272.985 \div 19.195 = x$   
 A) 62  
 B) 66  
 C) 75  
 D) 81  
 E) 78

[View Answer](#)

**Option B****Solution:**

$$\begin{aligned} 795 \div 15 &= 53 \\ 768 \div 12 &= 64 \\ 64 \div 4 &= 16 \\ -1273 \div 19 &= -67 \end{aligned}$$

4.  $\sqrt{x} + 36.09\% \text{ of } 350 - 16.009 \times 22.897 = -(14)^2$   
 A) 2068  
 B) 2025  
 C) 2749  
 D) 2116  
 E) 2209

**View Answer****Option D****Solution:**

$$\begin{aligned} 36\% \text{ of } 350 &= 126 \\ 16 \times 23 &= 368 \\ -(14)^2 &= -196 \\ \text{so } \sqrt{x} &= -196 - 126 + 368 = 46 \\ \text{So, } x &= 2116 \end{aligned}$$

5.  $18\% \text{ of } 649.99 - 945 \div 16 + 456.23 = x$   
 A) 514  
 B) 578  
 C) 334  
 D) 424  
 E) 488

**View Answer****Option A**

6.  $x\% \text{ of } (6750 \div 15) - 12.12 \times 16.16 = 116.99 - 23.99\% \text{ of } 649.891$   
 A) 22  
 B) 45  
 C) 34  
 D) 32  
 E) 48

**View Answer****Option C****Solution:**

$$x\% \text{ of } 450 - 192 = 117 - 156$$

$$x\% \text{ of } 450 = 153$$

$$x = 34$$

7.  $58.09\% \text{ of } 1250 + 27.992\% \text{ of } 449.90 = x$   
 A) 845  
 B) 715  
 C) 890  
 D) 765  
 E) 850

**View Answer****Option E**

8.  $x\% \text{ of } 4860 - 459.08 + 26.06\% \text{ of } 1350 = 2565.299$   
 A) 55  
 B) 35  
 C) 64  
 D) 60  
 E) 63

**View Answer****Option A****Solution:**

$$\begin{aligned} x\% \text{ of } 4860 &= 2565 + 459 - 351 \\ x\% \text{ of } 4860 &= 2673 \\ x &= 26730/486 = 55 \end{aligned}$$

9.  $(23)^2 - 24.069 \times 15.992 + 15.99\% \text{ of } 550 = x$   
 A) 409  
 B) 276  
 C) 233  
 D) 308  
 E) 205

**View Answer****Option C**

10.  $\sqrt{1025} + \sqrt{1370} + 28\% \text{ of } 750 = x$   
 A) 372  
 B) 234  
 C) 335  
 D) 279  
 E) 235

**View Answer****Option D**

**Directions:** What value should come in place of the x in the following questions?

1.  $(\sqrt{5} - \sqrt{10})^2 + (\sqrt{2} + 5)^2 = x^3 - 22$

- A) 3
- B) 5
- C) 8
- D) 7
- E) 4

**View Answer****Option E****Solution:**

$$\begin{aligned}(\sqrt{5} - \sqrt{10})^2 &= \sqrt{5}^2 + \sqrt{10}^2 - 2 * \sqrt{5} * \sqrt{10} = 5 + \\10 - 2 * \sqrt{5} * \sqrt{2} * \sqrt{5} &= 15 - 10\sqrt{2} \\(\sqrt{2} + 5)^2 &= 2 + 25 + 10\sqrt{2} \\So 15 - 10\sqrt{2} + 27 + 10\sqrt{2} &= x^3 - 22 \\15 + 27 + 22 &= x^3\end{aligned}$$

2. 55% of  $\sqrt{2116} \div 0.01 = x \times 20$

- A) 124.5
- B) 126.5
- C) 132.5
- D) 133.5
- E) 139.5

**View Answer****Option B****Solution:**

$$\begin{aligned}55/100 * 46/0.01 &= 20x \\55 * 46 &= 20x\end{aligned}$$

3.  $\sqrt{(12^2 \times 16 \div 24 + 193 + 7 \times 5)} = x^2$

- A)  $3\sqrt{2}$
- B)  $2\sqrt{2}$
- C)  $4\sqrt{2}$
- D)  $5\sqrt{2}$
- E) None of these

**View Answer****Option A****Solution:**

$$12 * 12 * 16 / 24 = 96$$

$$193 + 7 \times 5 = 193 + 35 = 228$$

$$\sqrt{96+228} = x^2$$

$$18 = x^2$$

4.  $\sqrt{31.36} \div \sqrt{0.64} \times 252 = x^2 \times 36$

- A) 11
- B) -8
- C) 49
- D) 81
- E) -7

**View Answer****Option E****Solution:**

$$\begin{aligned}5.6/0.8 * 252 &= x^2 \times 36 \\x^2 &= 49\end{aligned}$$

5.  $(1.69)^4 \div (2197 \div 1000)^3 \times (0.13 \times 10)^3 =$

- (1.3)<sup>x-2</sup>
- A) 2
- B) 5
- C) 3
- D) 4
- E) 0

**View Answer****Option D****Solution:**

$$\begin{aligned}(1.69)^4 &= (1.3)^8 \\(2.197)^3 &= (1.3)^9 \\(1.3)^8 / (1.3)^9 * (1.3)^3 &= (1.3)^2 \\(1.3)^2 &= (1.3)^{x-2} \\2 &= x-2, so x = 4\end{aligned}$$

**Directions:** What approximate value should come in place of the x in the following questions? (You are expected to do approximations)

6. 68% of 1288 + 26% of 734 - 215 = x

- A) 820
- B) 850
- C) 735
- D) 825
- E) 780

[View Answer](#)**Option B****Solution:**

$$68\% \text{ of } 1288 + 26\% \text{ of } 734 - 215 = x$$
$$875.84 + 190.84 - 215 = 852$$

7.  $(32.05)^2 - (18.9)^2 - (11.9)^2 = x$
- A) 545
  - B) 615
  - C) 690
  - D) 665
  - E) 530

[View Answer](#)**Option E****Solution:**

$$1027 - 357 - 144 = 526$$

8.  $6578 \div 67 \times 15 = x \times 6$
- A) 320
  - B) 250
  - C) 340
  - D) 200
  - E) 230

[View Answer](#)**Option B****Solution:**

$$6578 \times 15 / 67 \times 6 = 250$$

9.  $679/45 \div 23/2130 \times 126/169 = x$
- A) 1090
  - B) 1060
  - C) 1040
  - D) 1080
  - E) 1050

[View Answer](#)**Option C****Solution:**

$$680/45 \times 2130/23 \times 126/169 = 1043$$

10.  $\sqrt{5687} \times \sqrt{1245} \div \sqrt{689} = x \div 13$
- A) 1320
  - B) 1340
  - C) 1305
  - D) 1365
  - E) 1345

[View Answer](#)**Option A****Solution:**

$$74.4 \times 35.2 \times 13 / 26.2 = 1320$$

# 100+ QUADRATIC EQUATION QUESTIONS WITH SOLUTION



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**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $12x^2 + 25x + 12 = 0$   
 II.  $4y^2 - 5y - 6 = 0$ 
  - A) If  $x > y$
  - B) If  $x < y$
  - C) If  $x \geq y$
  - D) If  $x \leq y$
  - E) If  $x = y$  or relation cannot be established

#### Option D

##### Solution:

$$x = -4/3, -3/4$$

$$y = -3/4, 2$$

Put all values on number line and analyze the relationship

-4/3.....-3/4.....2

2. I.  $3x^2 - 19x + 28 = 0$   
 II.  $6y^2 + 11y - 7 = 0$ 
  - A) If  $x > y$
  - B) If  $x < y$
  - C) If  $x \geq y$
  - D) If  $x \leq y$
  - E) If  $x = y$  or relation cannot be established

#### Option A

##### Solution:

$$x = 7/3, 4$$

$$y = 1/2, -7/3$$

Put all values on number line and analyze the relationship

-7/3.....1/2.....7/3.....4

3. I.  $2x^2 - 3x - 9 = 0$   
 II.  $3y^2 - y - 10 = 0$ 
  - A) If  $x > y$
  - B) If  $x < y$
  - C) If  $x \geq y$
  - D) If  $x \leq y$
  - E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -3/2, 3$$

$$y = -5/3, 2$$

Put all values on number line and analyze the relationship

-5/3.....-3/2.....2.....3

4. I.  $4x^2 + 17x + 15 = 0$

$$\text{II. } 6y^2 + 23y + 21 = 0$$

- A) If  $x > y$

- B) If  $x < y$

- C) If  $x \geq y$

- D) If  $x \leq y$

- E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -3, -5/4$$

$$y = -7/3, -3/2$$

Put all values on number line and analyze the relationship

-3.....-7/3.....-3/2.....-5/4

5. I.  $4x^2 - 19x + 12 = 0$

$$\text{II. } 2y^2 - 17y + 36 = 0$$

- A) If  $x > y$

- B) If  $x < y$

- C) If  $x \geq y$

- D) If  $x \leq y$

- E) If  $x = y$  or relation cannot be established

#### Option D

##### Solution:

$$x = 3/4, 4$$

$$y = 4, 9/2$$

Put all values on number line and analyze the relationship

3/4.....4.....9/2

6. I.  $3x^2 + 13x + 14 = 0$   
 II.  $3y^2 + y - 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option D****Solution:**

$$\begin{aligned}x &= -7/3, -2 \\y &= -2, 5/3\end{aligned}$$

Put all values on number line and analyze  
the relationship  
 $-7/3 \dots -2 \dots 5/3$

7. I.  $2x^2 - 19x + 42 = 0$   
 II.  $3y^2 - 17y - 6 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be  
determined

**Option E****Solution:**

$$\begin{aligned}x &= 7/2, 6 \\y &= -1/3, 6\end{aligned}$$

Put all values on number line and analyze  
the relationship  
 $-1/3 \dots 7/2 \dots 6$

8. I.  $3x^2 + 16x + 20 = 0$   
 II.  $3y^2 - 14y - 5 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$\begin{aligned}x &= -2, -10/3 \\y &= -1/3, 5\end{aligned}$$

Put all values on number line and analyze  
the relationship  
 $-10/3 \dots -2 \dots -1/3 \dots 5$

9. I.  $2x^2 - 17x + 36 = 0$   
 II.  $6y^2 - 35y + 50 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option A****Solution:**

$$\begin{aligned}x &= 4, 9/2 \\y &= 5/2, 10/3\end{aligned}$$

Put all values on number line and analyze  
the relationship  
 $5/2 \dots 10/3 \dots 4 \dots 9/2$

10. I.  $3x^2 + 4x - 39 = 0$   
 II.  $2y^2 - 15y + 27 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be  
determined

**Option D****Solution:**

$$\begin{aligned}x &= -13/3, 3 \\y &= 3, 9/2\end{aligned}$$

Put all values on number line and analyze  
the relationship  
 $-13/3 \dots 3 \dots 9/2$

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find

out the relationship between x and y. Then give answer accordingly-

1. I.  $3x^2 - 4x - 4 = 0$ ,  
II.  $3y^2 + 17y + 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option C

##### Solution:

$$x = -2/3, 2$$

$$y = -5, -2/3$$

Put all values on number line and analyze the relationship  
 $-5 \dots -2/3 \dots 2$

2. I.  $3x^2 - 15x + 12 = 0$ ,  
II.  $3y^2 - 19y + 20 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = 4/3, 3$$

$$y = 4/3, 5$$

Put all values on number line and analyze the relationship  
 $4/3 \dots 3 \dots 5$

3. I.  $2x^2 - 17x + 35 = 0$ ,  
II.  $3y^2 - 4y - 15 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option A

##### Solution:

$$x = 7/2, 5$$

$$y = -5/3, 3$$

Put all values on number line and analyze the relationship  
 $-5/3 \dots 3 \dots 7/2 \dots 5$

4. I.  $3x^2 - 4x - 15 = 0$ ,  
II.  $3y^2 - 23y + 30 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -5/3, 3$$

$$y = 5/3, 6$$

Put all values on number line and analyze the relationship  
 $-5/3 \dots 5/3 \dots 3 \dots 6$

5. I.  $3x^2 - 5x - 28 = 0$ ,  
II.  $2y^2 - 17y + 36 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option D

##### Solution:

$$x = -7/3, 4$$

$$y = 4, 9/2$$

Put all values on number line and analyze the relationship  
 $-7/3 \dots 4 \dots 9/2$

6. I.  $3x^2 - 17x + 20 = 0$ ,  
II.  $3y^2 + y - 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$

- C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

Put all values on number line and analyze  
 the relationship  
 $-9/2 \dots 2 \dots 5/2 \dots 4$

### Option C

#### Solution:

$$x = 5/3, 4$$

$$y = -2, 5/3$$

Put all values on number line and analyze  
 the relationship  
 $-2 \dots -5/3 \dots 4$

7. I.  $2x^2 + 17x + 36 = 0$ ,  
 II.  $3y^2 - 17y - 6 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

9. I.  $2x^2 - 17x + 36 = 0$ ,  
 II.  $3y^2 - 28y + 64 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$x = 4, 9/2$$

$$y = 4, 16/3$$

Put all values on number line and analyze  
 the relationship  
 $4 \dots 9/2 \dots 16/3$

10. I.  $3x^2 - 2x - 21 = 0$ ,  
 II.  $2y^2 - 15y + 27 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

### Option B

#### Solution:

$$x = -9/2, -4$$

$$y = -1/3, 6$$

Put all values on number line and analyze  
 the relationship  
 $-9/2 \dots -4 \dots -1/3 \dots 6$

8. I.  $2x^2 - 13x + 20 = 0$ ,  
 II.  $2y^2 + 5y - 18 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option D

#### Solution:

$$x = -7/3, 3$$

$$y = 3, 9/2$$

Put all values on number line and analyze  
 the relationship  
 $-7/3 \dots 3 \dots 9/2$

### Option A

#### Solution:

$$x = 5/2, 4$$

$$y = -9/2, 2$$

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $15x^2 - 34x + 15 = 0$ ,  
 II.  $4y^2 - 29y + 45 = 0$

- A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

the relationship  
 $-3/4 \dots 3/2 \dots 3 \dots 7$

### Option B

#### Solution:

$$x = 5/3, 3/5$$

$$y = 2.25, 5$$

Put all values on number line and analyze the relationship

$$3/5 \dots 5/3 \dots 2.25 \dots 5$$

2. I.  $x^2 - 21x + 104 = 0$ ,  
 II.  $y^2 - 28y + 195 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

4. I.  $5x^2 - 26x + 21 = 0$ ,  
 II.  $3y^2 - 8y - 16 = 0$

- A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option D

#### Solution:

$$x = 13, 8$$

$$y = 13, 15$$

Put all values on number line and analyze the relationship

$$8 \dots 13 \dots 15$$

3. I.  $4x^2 - 9x - 9 = 0$ ,  
 II.  $2y^2 - 17y + 21 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

5. I.  $2x^2 - 23x + 21 = 0$ ,  
 II.  $3y^2 - 19y + 28 = 0$

- A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$x = -3/4, 3$$

$$y = 3/2, 7$$

Put all values on number line and analyze

### Option E

#### Solution:

$$x = 2, 21/2$$

$$y = 7/3, 4$$

Put all values on number line and analyze the relationship

$$2 \dots 7/3 \dots 4 \dots 21/2$$

6. I.  $5x^2 + 11x - 12 = 0$ ,  
 II.  $4y^2 - 20y + 21 = 0$

- A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$x = -3, \frac{4}{5}$$

$$y = 1.5, 3.5$$

Put all values on number line and analyze the relationship

$$-3 \dots \dots \frac{4}{5} \dots \dots 1.5 \dots \dots 3.5$$

7. I.  $2x^2 + 11x + 14 = 0$ ,  
 II.  $3y^2 - 10y - 8 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option B****Solution:**

$$x = -3.5, -2$$

$$y = -\frac{2}{3}, 4$$

Put all values on number line and analyze the relationship

$$-3.5 \dots \dots -2 \dots \dots -\frac{2}{3} \dots \dots 4$$

8. I.  $2x^2 + 17x + 30 = 0$ ,  
 II.  $4y^2 - 13y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$x = -6, -\frac{5}{2}$$

$$y = -\frac{3}{4}, 4$$

Put all values on number line and analyze the relationship

$$-6 \dots \dots -\frac{5}{2} \dots \dots -\frac{3}{4} \dots \dots 4$$

9. I.  $3x^2 - 10x + 8 = 0$ ,  
 II.  $3y^2 + 8y - 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option C****Solution:**

$$x = 2, \frac{4}{3}$$

$$y = -4, \frac{4}{3}$$

Put all values on number line and analyze the relationship

$$-4 \dots \dots \frac{4}{3} \dots \dots 2$$

10. I.  $3x^2 - 4x - 4 = 0$ ,  
 II.  $4y^2 + 23y + 15 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option A****Solution:**

$$x = -\frac{2}{3}, 2$$

$$y = -5, -\frac{3}{4}$$

Put all values on number line and analyze the relationship

$$-5 \dots \dots -\frac{3}{4} \dots \dots -\frac{2}{3} \dots \dots 2$$

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $4x^2 + 3x - 27 = 0$ ,  
 II.  $3y^2 - 20y + 32 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

4. I.  $3x^2 - 5x - 12 = 0$ ,  
 II.  $3y^2 - 8y - 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option B

#### Solution:

$$x = 2.25, -3$$

$$y = 8/3, 4$$

Put all values on number line and analyze  
the relationship

$$-3 \dots 2.25 \dots 8/3 \dots 4$$

2. I.  $4x^2 + 19x + 21 = 0$ ,  
 II.  $3y^2 - 19y - 14 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option B

#### Solution:

$$x = -3, -1.75$$

$$y = -2/3, 7$$

Put all values on number line and analyze  
the relationship

$$-3 \dots -1.75 \dots -2/3 \dots 7$$

3. I.  $4x^2 - 9x - 9 = 0$ ,  
 II.  $15y^2 - 29y + 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$x = -3/4, 3$$

$$y = 3/5, 4/3$$

Put all values on number line and analyze  
the relationship

$$-3/4 \dots 3/5 \dots 4/3 \dots 3$$

### Option E

#### Solution:

$$x = -4/3, 3$$

$$y = -4/3, 4$$

Put all values on number line and analyze  
the relationship

$$-4/3 \dots 3 \dots 4$$

5. I.  $3x^2 + 2x - 21 = 0$ ,  
 II.  $3y^2 - 19y + 28 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option D

#### Solution:

$$x = -3, 7/3$$

$$y = 7/3, 4$$

Put all values on number line and analyze  
the relationship

$$-3 \dots 7/3 \dots 4$$

6. I.  $5x^2 + 11x - 12 = 0$ ,  
 II.  $3y^2 - 19y + 28 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option B

#### Solution:

$$x = -3, 4/5$$

$$y = 7/3, 4$$

Put all values on number line and analyze the relationship

$$-3 \dots \dots 4/5 \dots \dots 7/3 \dots \dots 4$$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

7. I.  $3x^2 - 25x + 52 = 0$ ,  
 II.  $3y^2 - 10y - 8 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

### Option C

#### Solution:

$$x = 4, 13/3$$

$$y = -2/3, 4$$

Put all values on number line and analyze the relationship

$$-2/3 \dots \dots 4 \dots \dots 13/3$$

8. I.  $3x^2 + 7x - 6 = 0$ ,  
 II.  $4y^2 - 13y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$x = -3, 2/3$$

$$y = -3/4, 4$$

Put all values on number line and analyze the relationship

$$-3 \dots \dots -3/4 \dots \dots 2/3 \dots \dots 4$$

9. I.  $3x^2 + 2x - 8 = 0$ ,  
 II.  $3y^2 - 14y + 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$

### Option B

#### Solution:

$$x = -2, 4/3$$

$$y = 2, 8/3$$

Put all values on number line and analyze the relationship

$$-2 \dots \dots 4/3 \dots \dots 2 \dots \dots 8/3$$

10. I.  $3x^2 + 28x + 60 = 0$ ,

- II.  $3y^2 + 37y + 114 = 0$

A)  $x > y$

B)  $x < y$

C)  $x \geq y$

D)  $x \leq y$

E)  $x = y$  or relationship cannot be determined



### Option C

#### Solution:

$$x = -6, -10/3$$

$$y = -19/3, -6$$

Put all values on number line and analyze the relationship

$$-19/3 \dots \dots -6 \dots \dots -10/3$$

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $3x^2 - 13x + 14 = 0$ ,

- II.  $3y^2 - 20y + 32 = 0$

A) If  $x > y$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$x = 2, \frac{7}{3}$$

$$y = \frac{8}{3}, 4$$

Put all values on number line and analyze the relationship

$$2 \dots \frac{7}{3} \dots \frac{8}{3} \dots 4$$

2. I.  $3x^2 + 10x + 8 = 0$ ,  
 II.  $3y^2 - 19y - 14 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$x = -2, -\frac{4}{3}$$

$$y = -\frac{2}{3}, 7$$

Put all values on number line and analyze the relationship

$$-2 \dots -\frac{4}{3} \dots -\frac{2}{3} \dots 7$$

3. I.  $4x^2 - 9x - 9 = 0$ ,  
 II.  $4y^2 + 13y + 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option A****Solution:**

$$x = -\frac{3}{4}, 3$$

$$y = -2, -\frac{5}{4}$$

Put all values on number line and analyze the relationship

$$-2 \dots -\frac{5}{4} \dots -\frac{3}{4} \dots 3$$

4. I.  $4x^2 - 23x + 30 = 0$ ,  
 II.  $3y^2 - 8y - 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$x = \frac{15}{4}, 2$$

$$y = -\frac{4}{3}, 4$$

Put all values on number line and analyze the relationship

$$-\frac{4}{3} \dots 2 \dots \frac{15}{4} \dots 4$$

5. I.  $3x^2 + 2x - 21 = 0$ ,  
 II.  $3y^2 - 2y - 8 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$x = -3, \frac{7}{3}$$

$$y = -\frac{4}{3}, 1$$

Put all values on number line and analyze the relationship

$$-3 \dots -\frac{4}{3} \dots 1 \dots \frac{7}{3}$$

6. I.  $3x^2 - 19x + 30 = 0$ ,  
 II.  $3y^2 - 19y + 28 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$x = 3, \frac{10}{3}$$

$$y = \frac{7}{3}, 4$$

Put all values on number line and analyze the relationship

7/3.....3.....10/3.....4

7. I.  $3x^2 - 25x + 52 = 0$ ,  
 II.  $2y^2 - 13y + 6 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option E****Solution:**

$x = 4, 13/3$

$y = 1/2, 6$

Put all values on number line and analyze the relationship

1/2.....4.....13/3.....6

8. I.  $4x^2 + 15x + 9 = 0$ ,  
 II.  $4y^2 - 13y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option D****Solution:**

$x = -3, -3/4$

$y = -3/4, 4$

Put all values on number line and analyze the relationship

-3.....-3/4.....4

9. I.  $20x^2 - 31x + 12 = 0$ ,  
 II.  $3y^2 - 14y + 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$x = 3/4, 4/5$

$y = 2, 8/3$

Put all values on number line and analyze the relationship

3/4.....4/5.....2.....8/3

10. I.  $3x^2 + 16x + 20 = 0$ ,  
 II.  $3y^2 + 37y + 114 = 0$

- A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option A****Solution:**

$x = -10/3, -2$

$y = -19/3, -6$

Put all values on number line and analyze the relationship

-19/3.....-6.....-10/3.....-2

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $3x^2 - 25x + 52 = 0$   
 II.  $3y^2 - 5y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option A****Solution:**

$x = 4, 13/3$

$y = -4/3, 3$

Put all values on number line and analyze  
the relationship

-4/3.....3.....4.....13/3

2. I.  $4x^2 + 23x + 28 = 0$   
 II.  $2y^2 + 7y - 4 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -4, -7/4$$

$$y = -4, 1/2$$

Put all values on number line and analyze  
the relationship

-4.....-7/4.....1/2

3. I.  $7x^2 + 19x - 6 = 0$   
 II.  $4y^2 + 13y + 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -3, 2/7$$

$$y = -2, -5/4$$

Put all values on number line and analyze  
the relationship

-3.....-2.....-5/4.....2/7

4. I.  $16x^2 + 8x - 15 = 0$   
 II.  $2y^2 - 13y + 6 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option E

##### Solution:

$$x = -5/4, 3/4$$

$$y = 1/2, 6$$

Put all values on number line and analyze  
the relationship

-5/4.....1/2.....3/4.....6

5. I.  $3x^2 + 7x - 6 = 0$   
 II.  $4y^2 - 11y + 6 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option B

##### Solution:

$$x = -3, 2/3$$

$$y = 3/4, 2$$

Put all values on number line and analyze  
the relationship

-3.....2/3.....3/4.....2

6. I.  $3x^2 - 19x + 30 = 0$   
 II.  $5y^2 - 18y + 9 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

#### Option C

##### Solution:

$$x = 3, 10/3$$

$$y = 3/5, 3$$

Put all values on number line and analyze  
the relationship

3/5.....3.....10/3

7. I.  $3x^2 - 10x + 8 = 0$   
 II.  $3y^2 - 8y - 16 = 0$

- A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option E****Solution:**

$x = 2, 4/3$   
 $y = -4/3, 4$   
 Put all values on number line and analyze the relationship  
 $-4/3 \dots 4/3 \dots 2 \dots 4$

8. I.  $2x^2 + 17x + 21 = 0$   
 II.  $2y^2 + 11y + 12 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option E****Solution:**

$x = -7, -3/2$   
 $y = -4, -3/2$   
 Put all values on number line and analyze the relationship  
 $-7 \dots -4 \dots -3/2$

9. I.  $2x^2 - 9x + 4 = 0$   
 II.  $3y^2 - 19y + 28 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$x = 4, 1/2$   
 $y = 7/3, 4$   
 Put all values on number line and analyze the relationship  
 $1/2 \dots 7/3 \dots 4$

10. I.  $3x^2 + 22x + 24 = 0$   
 II.  $3y^2 + 37y + 114 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option C****Solution:**

$x = -4/3, -6$   
 $y = -19/3, -6$   
 Put all values on number line and analyze the relationship  
 $-19/3 \dots -6 \dots -4/3$

**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $3x^2 - 8x - 16 = 0$ ,  
 II.  $4y^2 - 11y - 20 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$x = -4/3, 4$   
 $y = -5/4, 4$   
 Put all values on number line and analyze

- the relationship**  
 $-4/3 \dots -5/4 \dots 4$
2. I.  $6x^2 - 19x + 10 = 0$ ,  
 II.  $3y^2 + 7y - 6 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- Option C**  
**Solution:**  
 $x = 2/3, 5/2$   
 $y = -3, 2/3$   
 Put all values on number line and analyze  
 the relationship  
 $-3 \dots 2/3 \dots 5/2$
3. I.  $4x^2 + 28x + 45 = 0$ ,  
 II.  $2y^2 - 5y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- Option B**  
**Solution:**  
 $x = -9/2, -5/2$   
 $y = -3/2, 4$   
 Put all values on number line and analyze  
 the relationship  
 $-9/2 \dots -5/2 \dots -3/2 \dots 4$
4. I.  $x^2 - 5x - 50 = 0$ ,  
 II.  $y^2 - 9y - 36 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- Option E**  
**Solution:**  
 $x = -5, 10$   
 $y = -3, 12$   
 Put all values on number line and analyze  
 the relationship  
 $-5 \dots -3 \dots 10 \dots 12$
5. I.  $3x^2 - 32x - 35 = 0$ ,  
 II.  $2y^2 + 23y + 45 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- Option A**  
**Solution:**  
 $x = -7/3, 5$   
 $y = -9, -5/2$   
 Put all values on number line and analyze  
 the relationship  
 $-9 \dots -5/2 \dots -7/3 \dots 5$
6. I.  $3x^2 - 28x + 65 = 0$ ,  
 II.  $2y^2 - 21y + 55 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- Option D**  
**Solution:**  
 $x = 13/3, 5$   
 $y = 5, 11/2$   
 Put all values on number line and analyze  
 the relationship  
 $13/5 \dots 5 \dots 11/2$
7. I.  $2x^2 - 17x + 35 = 0$ ,  
 II.  $6y^2 - 23y + 15 = 0$   
 A)  $x > y$   
 B)  $x < y$

- C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option A****Solution:**

$$x = 7/2, 5$$

$$y = 5/6, 3$$

Put all values on number line and analyze the relationship

$$5/6 \dots \dots \dots 3 \dots \dots \dots 7/2 \dots \dots \dots 5$$

8. I.  $3x^2 - 22x + 24 = 0$ ,  
 II.  $3y^2 + 11y - 20 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option C****Solution:**

$$x = 4/3, 6$$

$$y = -5, 4/3$$

Put all values on number line and analyze the relationship

$$-5 \dots \dots \dots 4/3 \dots \dots \dots 6$$

9. I.  $2x^2 = 50$ ,  
 II.  $3y^2 - 4y - 15 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$x = -5, 5$$

$y = -5/3, 3$   
 Put all values on number line and analyze the relationship  
 $-5 \dots \dots \dots -5/3 \dots \dots \dots 3 \dots \dots \dots 5$

10. I.  $x = \sqrt{361}$ ,  
 II.  $y^2 = 324$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option A****Solution:**

$$x = 19 \text{ (roots are not negative)}$$

$$y = -18, 18$$

Put all values on number line and analyze the relationship

$$-18 \dots \dots \dots 18 \dots \dots \dots 19$$



**Directions:** In the following questions, two equations numbered are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-

1. I.  $3x^2 - 13x - 30 = 0$ ,  
 II.  $3y^2 + 17y + 20 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option C****Solution:**

$$x = -5/3, 6$$

$$y = -4, -5/3$$

Put all values on number line and analyze the relationship

$$-4 \dots \dots \dots -5/3 \dots \dots \dots 6$$

2. I.  $3x^2 - 5x - 28 = 0$ ,  
 II.  $3y^2 - 32y - 35 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

$x = -7/2, 4$   
 $y = -3, 5/3$   
 Put all values on number line and analyze  
 the relationship  
 $-7/2 \dots -3 \dots 5/3 \dots 4$

**Option E****Solution:**

$$x = -7/3, 4$$

$$y = -7/3, 5$$

Put all values on number line and analyze  
 the relationship  
 $-7/3 \dots 4 \dots 5$

3. I.  $3x^2 - 10x - 8 = 0$ ,  
 II.  $2y^2 + 17y + 30 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

5. I.  $3x^2 - 22x + 24 = 0$ ,  
 II.  $2y^2 - 25y + 78 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option D****Solution:**

$$x = 4/3, 6$$

$$y = 6, 13/2$$

Put all values on number line and analyze  
 the relationship  
 $4/3 \dots 6 \dots 13/2$

6. I.  $2x^2 - x - 45 = 0$ ,  
 II.  $3y^2 - 13y - 10 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option A****Solution:**

$$x = -2/3, 4$$

$$y = -6, -5/2$$

Put all values on number line and analyze  
 the relationship  
 $-6 \dots -5/2 \dots -2/3 \dots 4$

4. I.  $2x^2 - x - 28 = 0$ ,  
 II.  $3y^2 + 4y - 15 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$x = -9/2, 5$$

$$y = -2/3, 5$$

Put all values on number line and analyze  
 the relationship  
 $-9/2 \dots -2/3 \dots 5$

7. I.  $2x^2 - 19x + 45 = 0$ ,  
 II.  $3y^2 + 16y - 12 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$

**Option E****Solution:**

E)  $x = y$  or relationship cannot be determined

the relationship  
 $-5/3 \dots 3 \dots 7/2$

### Option A

#### Solution:

$$x = 9/2, 5$$

$$y = -6, 2/3$$

Put all values on number line and analyze the relationship

$$-6 \dots 2/3 \dots 9/2 \dots 5$$

8. I.  $2x^2 + 17x + 35 = 0$ ,  
 II.  $2y^2 + 13y + 21 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

### Option D

#### Solution:

$$x = -5, -7/2$$

$$y = -7/2, -3$$

Put all values on number line and analyze the relationship

$$-5 \dots -7/2 \dots -3$$

9. I.  $2x^2 - 13x + 21 = 0$ ,  
 II.  $3y^2 - 4y - 15 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option C

#### Solution:

$$x = 3, 7/2$$

$$y = -5/3, 3$$

Put all values on number line and analyze

10. I.  $3x^2 + 4x - 32 = 0$ ,  
 II.  $2y^2 - 19y + 42 = 0$

A)  $x > y$

B)  $x < y$

C)  $x \geq y$

D)  $x \leq y$

E)  $x = y$  or relationship cannot be determined

### Option B

#### Solution:

$$x = -4, 8/3$$

$$y = 7/2, 6$$

Put all values on number line and analyze the relationship

$$-4 \dots 8/3 \dots 7/2 \dots 6$$

**Directions:** In the following questions, two equations numbered are given in variables  $x$  and  $y$ . You have to solve both the equations and find out the relationship between  $x$  and  $y$ . Then give answer accordingly-

1. I.  $2x^2 + 25x + 78 = 0$ ,  
 II.  $3y^2 + 23y + 30 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option D

#### Solution:

$$2x^2 + 25x + 78 = 0,$$

$$2x^2 + 12x + 13x + 78 = 0$$

$$\text{Gives } x = -13/2, -6$$

$$3y^2 + 23y + 30 = 0$$

$$3y^2 + 18y + 5y + 30 = 0$$

$$\text{Gives } y = -6, -5/3$$

Put all values on number line and analyze the relationship

$$-13/2 \dots -6 \dots -5/3$$

2. I.  $2x^2 + 7x - 15 = 0$ ,  
II.  $3y^2 + 11y - 20 = 0$   
A) If  $x > y$   
B) If  $x < y$   
C) If  $x \geq y$   
D) If  $x \leq y$   
E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$\begin{aligned}2x^2 + 7x - 15 &= 0 \\2x^2 + 10x - 3x - 15 &= 0 \\ \text{Gives } x &= -5, 3/2 \\3y^2 + 11y - 20 &= 0 \\3y^2 + 15y - 4y - 20 &= 0 \\ \text{Gives } y &= -5, 4/3\end{aligned}$$

Put all values on number line and analyze the relationship  
-5..... 3/2....4/3  
When  $x = 3/2$ , it is both  $> y(-5)$  and  $< y(4/3)$

3. I.  $3x^2 - 11x + 6 = 0$ ,  
II.  $3y^2 + 11y - 20 = 0$   
A) If  $x > y$   
B) If  $x < y$   
C) If  $x \geq y$   
D) If  $x \leq y$   
E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$\begin{aligned}3x^2 - 11x + 6 &= 0 \\3x^2 - 9x - 2x + 6 &= 0 \\ \text{Gives } x &= 2/3, 3 \\3y^2 + 11y - 20 &= 0 \\3y^2 + 15y - 4y - 20 &= 0 \\ \text{Gives } y &= -5, 4/3\end{aligned}$$

4. I.  $3x^2 + 17x + 20 = 0$ ,  
II.  $3y^2 - 4y - 15 = 0$   
A) If  $x > y$   
B) If  $x < y$   
C) If  $x \geq y$   
D) If  $x \leq y$   
E) If  $x = y$  or relation cannot be established

**Option D****Solution:**

$$\begin{aligned}3x^2 + 17x + 20 &= 0 \\3x^2 + 12x + 5x + 20 &= 0 \\ \text{Gives } x &= -4, -5/3 \\3y^2 - 4y - 15 &= 0 \\3y^2 - 9y + 5y - 15 &= 0 \\ \text{Gives } y &= -5/3, 3\end{aligned}$$

5. I.  $5x^2 - 19x + 12 = 0$ ,  
II.  $5y^2 + 6y - 8 = 0$   
A) If  $x > y$   
B) If  $x < y$   
C) If  $x \geq y$   
D) If  $x \leq y$   
E) If  $x = y$  or relation cannot be established

**Option C****Solution:**

$$\begin{aligned}\text{Explanation:} \\5x^2 - 19x + 12 &= 0 \\5x^2 - 19x + 12 &= 0 \\ \text{Gives } x &= 4/5, 3 \\5y^2 + 6y - 8 &= 0 \\5y^2 + 10y - 4y - 8 &= 0 \\ \text{Gives } y &= -2, 4/5\end{aligned}$$

6. I.  $3x^2 - 10x - 8 = 0$ ,  
II.  $2y^2 + 13y + 21 = 0$   
A) If  $x > y$   
B) If  $x < y$   
C) If  $x \geq y$   
D) If  $x \leq y$   
E) If  $x = y$  or relation cannot be established

**Option A****Solution:**

$$\begin{aligned}3x^2 - 10x - 8 &= 0 \\3x^2 - 12x + 2x - 8 &= 0 \\ \text{Gives } x &= -2/3, 4 \\2y^2 + 13y + 21 &= 0 \\2y^2 + 6y + 7y + 21 &= 0 \\ \text{Gives } y &= -7/2, -3\end{aligned}$$

7. I.  $4x^2 - 15x + 9 = 0$ ,  
II.  $2y^2 - 15y + 27 = 0$   
A)  $x > y$   
B)  $x < y$

- C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

$$\begin{aligned}x(4x - 1) + 2\sqrt{2}(4x - 1) &= 0 \\ \text{So } x &= 1/4, -2\sqrt{2} (-2.82) \\ 5y^2 + (1 + 5\sqrt{2})y + \sqrt{2} &= 0 \\ (5y^2 + y) + (5\sqrt{2}y + \sqrt{2}) &= 0 \\ y(5y + 1) + \sqrt{2}(5y + 1) &= 0 \\ \text{So, } y &= -1/5 (-0.2), -\sqrt{2} (-1.4)\end{aligned}$$

**Option D****Solution:**

$$\begin{aligned}4x^2 - 15x + 9 &= 0 \\ 4x^2 - 12x - 3x + 9 &= 0 \\ \text{Gives } x &= 3/4, 3 \\ 2y^2 - 15y + 27 &= 0 \\ 2y^2 - 6y - 9y + 27 &= 0 \\ \text{So } y &= 3, 9/2\end{aligned}$$

8. I.  $3x^2 - 14x + 8 = 0$ ,  
 II.  $2y^2 - 3y - 20 = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option E****Solution:**

$$\begin{aligned}3x^2 - 14x + 8 &= 0 \\ 3x^2 - 12x - 2x + 8 &= 0 \\ \text{Gives } x &= 2/3, 4 \\ 2y^2 - 3y - 20 &= 0 \\ 2y^2 - 8y + 5y - 20 &= 0 \\ \text{So } y &= -5/2, 4 \\ \text{When } x = 2/3, x > y (-5/2) \text{ and also } x < y \\ (4), \text{ so relationship cannot be determined}\end{aligned}$$

9. I.  $4x^2 - (1 - 8\sqrt{2})x - 2\sqrt{2} = 0$   
 II.  $5y^2 + (1 + 5\sqrt{2})y + \sqrt{2} = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$\begin{aligned}4x^2 - (1 - 8\sqrt{2})x - 2\sqrt{2} &= 0 \\ (4x^2 - x) + (8\sqrt{2}x - 2\sqrt{2}) &= 0\end{aligned}$$

10. I.  $3x^2 - (9 + \sqrt{3})x + 3\sqrt{3} = 0$ ,  
 II.  $3y^2 - (3 + 3\sqrt{3})y + 3\sqrt{3} = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined

**Option E****Solution:**

$$\begin{aligned}3x^2 - (9 + \sqrt{3})x + 3\sqrt{3} &= 0 \\ (3x^2 - 9x) - (\sqrt{3}x - 3\sqrt{3}) &= 0 \\ 3x(x - 3) - \sqrt{3}(x - 3) &= 0, \\ \text{So } x &= 3, \sqrt{3}/3 (0.58) \\ 3y^2 - (3 + 3\sqrt{3})y + 3\sqrt{3} &= 0 \\ (3y^2 - 3y) - (3\sqrt{3}y - 3\sqrt{3}) &= 0 \\ 3y(y - 1) - 3\sqrt{3}(y - 1) &= 0 \\ \text{So } x &= 1, \sqrt{3} (1.73)\end{aligned}$$



**Directions: In the following questions, two equations numbered I and II are given in variables x and y. You have to solve both the equations and find out the relationship between x and y. Then give answer accordingly-**

1. I.  $4x^2 - 29x + 45 = 0$ ,  
 II.  $4y^2 - 17y + 18 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option C****Solution:**

$$\begin{aligned}4x^2 - 29x + 45 &= 0 \\ 4x^2 - 20x - 9x + 45 &= 0 \\ \text{Gives } x &= 9/4, 5 \\ 4y^2 - 17y + 18 &= 0\end{aligned}$$

$$4y^2 - 8y - 9y + 18 = 0$$

Gives  $y = 2, 9/4$

E) If  $x = y$  or relation cannot be established

2. I.  $3x^2 - 13x - 30 = 0$ ,  
 II.  $2y^2 - 25y + 78 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$3x^2 - 16x - 35 = 0$$

$$3x^2 - 21x + 5x - 35 = 0$$

Gives  $x = -5/3, 7$

$$3y^2 - 23y + 40 = 0$$

$$3y^2 - 15y - 8y + 40 = 0$$

Gives  $y = 8/3, 5$

5. I.  $2x^2 - 23x + 65 = 0$ ,  
 II.  $3y^2 + 2y - 16 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

3. I.  $3x^2 - 20x + 32 = 0$ ,  
 II.  $3y^2 - 29y + 56 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$3x^2 - 20x + 32 = 0$$

$$3x^2 - 12x - 8x + 32 = 0$$

Gives  $x = 8/3, 4$

$$3y^2 - 29y + 56 = 0$$

$$3y^2 - 21y - 8y + 56 = 0$$

Gives  $y = 8/3, 7$

4. I.  $3x^2 - 16x - 35 = 0$ ,  
 II.  $3y^2 - 23y + 40 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$

### Option A

#### Solution:

$$2x^2 - 23x + 65 = 0$$

$$2x^2 - 10x - 13x + 65 = 0$$

Gives  $x = 5, 13/2$

$$3y^2 + 2y - 16 = 0$$

$$3y^2 - 6y + 8y - 16 = 0$$

Gives  $y = -8/3, 2$

6. I.  $x^2 - 78 = 91$ ,  
 II.  $\sqrt{3} y = \sqrt{432}$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$x^2 - 78 = 91$$

$$x^2 = 169$$

Gives  $x = -13, 13$

$$\sqrt{3} y = \sqrt{432}$$

$$y = \sqrt{432}/\sqrt{3} = \sqrt{144}$$

Gives  $y = 12$

Now when  $x = -13$ ,  $y > x$

and when  $x = 13$ ,  $y < x$

So relation cannot be established

7. I.  $3x^2 + 17x + 10 = 0$ ,  
 II.  $3y^2 + 14y - 5 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$3x^2 + 17x + 10 = 0$$

$$3x^2 + 15x + 2x + 10 = 0$$

Gives  $x = -5, -2/3$

$$3y^2 + 14y - 5 = 0$$

$$3y^2 + 15y - y - 5 = 0$$

Gives  $y = -5, 1/3$

8. I.  $2x^2 - 13x + 15 = 0$ ,  
 II.  $2y^2 + 5y - 12 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option C

#### Solution:

$$2x^2 - 13x + 15 = 0$$

$$2x^2 - 10x - 3x + 15 = 0$$

Gives  $x = 3/2, 5$

$$2y^2 + 5y - 12 = 0$$

$$2y^2 + 8y - 3y - 12 = 0$$

Gives  $y = -4, 3/2$

9. I.  $2x^2 - 3x - 35 = 0$ ,  
 II.  $3y^2 + 11y + 6 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

### Option E

#### Solution:

$$2x^2 - 3x - 35 = 0$$

$$2x^2 - 10x + 7x - 35 = 0$$

Gives  $x = -7/2, 5$

$$3y^2 + 11y + 6 = 0$$

$$3y^2 + 9y + 2y + 6 = 0$$

Gives  $y = -3, -2/3$

10. I.  $3x^2 + 19x + 20 = 0$ ,

$$\text{II. } 3y^2 - 7y - 6 = 0$$

A) If  $x > y$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

### Option B

#### Solution:

$$3x^2 + 19x + 20 = 0$$

$$3x^2 + 15x + 4x + 20 = 0$$

Gives  $x = -5, -4/3$

$$3y^2 - 7y - 6 = 0$$

$$3y^2 - 9y + 2y - 6 = 0$$

Gives  $y = -2/3, 3$

**Directions:** In the following questions, two equations numbered are given in variables  $x$  and  $y$ . You have to solve both the equations and find out the relationship between  $x$  and  $y$ . Then give answer accordingly-

1. I.  $4x^2 - x - 14 = 0$ ,  
 II.  $2y^2 - 13y + 20 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

### Option B

#### Solution:

$$4x^2 - x - 14 = 0$$

$$4x^2 - 8x + 7x - 14 = 0$$

Gives  $x = -7/4, 2$

$$2y^2 - 13y + 20 = 0$$

$$2y^2 - 8y - 5y + 20 = 0$$

Gives  $y = 5/2, 4$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

2. I.  $2x^2 - 11x + 14 = 0$ ,  
II.  $3y^2 + 13y + 14 = 0$

A) If  $x > y$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

### Option B

**Solution:**

$$3x^2 + 28x + 60 = 0$$

$$3x^2 + 18x + 10x + 60 = 0$$

Gives  $x = -6, -10/3$

$$2y^2 - 3y - 20 = 0$$

$$2y^2 - 8y + 5y - 20 = 0$$

Gives  $y = -5/2, 4$

5. I.  $3x^2 - 8x - 35 = 0$ ,

$$\text{II. } 3y^2 + 37y + 104 = 0$$

A) If  $x > y$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

3. I.  $3x^2 + 14x + 15 = 0$ ,  
II.  $3y^2 - 13y - 30 = 0$
- A) If  $x > y$ 
B) If  $x < y$ 
C) If  $x \geq y$ 
D) If  $x \leq y$ 
E) If  $x = y$  or relation cannot be established

### Option A

**Solution:**

$$3x^2 - 8x - 35 = 0$$

$$3x^2 - 15x + 7x - 35 = 0$$

Gives  $x = 5, -7/3$

$$3y^2 + 37y + 104 = 0$$

$$3y^2 + 24y + 13y + 104 = 0$$

Gives  $y = -8, -13/3$

6. I.  $3x^2 - 5x - 78 = 0$ ,

$$\text{II. } 3y^2 + 28y + 65 = 0$$

A) If  $x > y$

B) If  $x < y$

C) If  $x \geq y$

D) If  $x \leq y$

E) If  $x = y$  or relation cannot be established

4. I.  $3x^2 + 28x + 60 = 0$ ,  
II.  $2y^2 - 3y - 20 = 0$
- A) If  $x > y$

### Option C

**Solution:**

$$3x^2 - 5x - 78 = 0$$

- $3x^2 - 18x + 13x - 78 = 0$   
 Gives  $x = -13/3, 6$   
 $3y^2 + 28y + 65 = 0$   
 $3y^2 + 15y + 13y + 65 = 0$   
 Gives  $y = -5, -13/3$
7. I.  $3x^2 - 7x - 40 = 0$ ,  
 II.  $3y^2 + 26y + 48 = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established
- So,  $y = -1, -\sqrt{2} (-1.41)$
9. I.  $6x^2 - (3 + 4\sqrt{3})x + 2\sqrt{3} = 0$ ,  
 II.  $4y^2 - (2 + 4\sqrt{3})y + 2\sqrt{3} = 0$   
 A)  $x > y$   
 B)  $x < y$   
 C)  $x \geq y$   
 D)  $x \leq y$   
 E)  $x = y$  or relationship cannot be determined
- Option C**  
**Solution:**  
 $3x^2 - 7x - 40 = 0$   
 $3x^2 - 15x + 8x - 40 = 0$   
 Gives  $x = -8/3, 5$   
 $3y^2 + 26y + 48 = 0$   
 $3y^2 + 18y + 8y + 48 = 0$   
 Gives  $y = -6, -8/3$
10. I.  $x^2 + (4 + 2\sqrt{2})x + 8\sqrt{2} = 0$   
 II.  $y^2 - (2 + 3\sqrt{3})y + 6\sqrt{3} = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option E****Solution:**

$$\begin{aligned} 6x^2 - (3 + 4\sqrt{3})x + 2\sqrt{3} &= 0 \\ (6x^2 - 3x) - (4\sqrt{3}x - 2\sqrt{3}) &= 0 \\ 3x(2x - 1) - 2\sqrt{3}(2x - 1) &= 0, \\ \text{So } x &= 1/2 (0.5), 2\sqrt{3}/3 (1.16) \\ 4y^2 - (2 + 4\sqrt{3})y + 2\sqrt{3} &= 0 \\ (4y^2 - 2y) - (4\sqrt{3}y - 2\sqrt{3}) &= 0 \\ 2y(2y - 1) - 2\sqrt{3}(2y - 1) &= 0 \\ \text{So, } y &= 1/2 (0.5), \sqrt{3} (1.73) \end{aligned}$$



10. I.  $x^2 + (4 + 2\sqrt{2})x + 8\sqrt{2} = 0$   
 II.  $y^2 - (2 + 3\sqrt{3})y + 6\sqrt{3} = 0$   
 A) If  $x > y$   
 B) If  $x < y$   
 C) If  $x \geq y$   
 D) If  $x \leq y$   
 E) If  $x = y$  or relation cannot be established

**Option B****Solution:**

$$\begin{aligned} x^2 + (4 + 2\sqrt{2})x + 8\sqrt{2} &= 0 \\ (x^2 + 4x) + (2\sqrt{2}x + 8\sqrt{2}) &= 0 \\ x(x + 4) + 2\sqrt{2}(x + 4) &= 0 \\ \text{So } x &= -4, -2\sqrt{2} (-2.82) \\ 3y^2 + (3 + 3\sqrt{2})y + 3\sqrt{2} &= 0 \\ (3y^2 + 3y) + (3\sqrt{2}y + 3\sqrt{2}) &= 0 \\ 3y(y + 1) + 3\sqrt{2}(y + 1) &= 0 \end{aligned}$$

**Option B****Solution:**

$$\begin{aligned} x^2 + (4 + 2\sqrt{2})x + 8\sqrt{2} &= 0 \\ (x^2 + 4x) + (2\sqrt{2}x + 8\sqrt{2}) &= 0 \\ x(x + 4) + 2\sqrt{2}(x + 4) &= 0 \\ \text{So } x &= -4, -2\sqrt{2} (-2.82) \\ y^2 - (2 + 3\sqrt{3})y + 6\sqrt{3} &= 0 \\ (y^2 - 2y) - (3\sqrt{3}y - 6\sqrt{3}) &= 0 \\ y(y - 2) - 3\sqrt{3}(y - 2) &= 0 \\ \text{So } y &= 2, 3\sqrt{3} (5.2) \end{aligned}$$



**RATIO &  
PROPORTION  
QUESTIONS WITH  
SOLUTION**

[ ]

An amount of money is to be divided between P, Q and R in the ratio of 3:7:12. If the difference between the shares of P and Q is Rs.X, and the difference between Q and R's share is Rs.3000. Find the total amount of money?

- A.11000
- B.12400
- C.13200
- D.14300
- E.None of these

**Answer & Explanation**

Answer – C.13200

**Explanation :**

$$12a - 7a = 3000$$

$$5a = 3000$$

$$a = 600$$

$$7a - 4a = x$$

$$3a = x$$

$$x = 1800$$

$$22 * 600 = 13200$$

- If a certain amount X is divided among A, B, C in such a way that A gets  $\frac{2}{3}$  of what B gets and B gets  $\frac{1}{3}$  of what C gets, which of the following is true

- A.C's Share = 1053 and X = 1666
- B.A's Share = 238 and X = 1638
- C.B's Share = 234 and X = 1666
- D.C's Share = 1053 and X = 1638
- E.A's Share = 351 and X = 1638

**Answer & Explanation**

Answer – D.C's Share = 1053 and X = 1638

**Explanation :**

$$A = \frac{2}{3}B; B = \frac{1}{3}C;$$

$$A:B = 2:3; B:C = 1:3;$$

$$A:B:C = 2:3:9$$

$$C = \frac{9}{14} * 1638 = 1053$$

- Seats for Mathematics, Science and arts in a school are in the ratio 5:7:8. There is a proposal to increase these seats by X%, Y% and Z% respectively. And the ratio of increased seats is 2:3:4, which of the following is true?

- A.X = 50; Z = 40
- B.Y = 40; Z = 50
- C.X = 40; Z = 75
- D.X = 50; Z = 40
- E.Y = 50; X = 75

**Answer & Explanation**

Answer – C.X = 40; Z = 75

**Explanation :**

Number of increased seats are (140% of 5x), (150% of 7x) and (175% of 8x)  
i.e.,  $(140/100 * 5x)$ ,  $(150/100 * 7x)$  and  $(175/100 * 8x)$

i.e.,  $7x$ ,  $21x/2$  and  $14x$   
Required ratio =  $7x:21x/2:14x$   
 $= 14x : 21x : 28x = 2:3:4$

- An amount of money is to be distributed among P, Q and R in the ratio of 7:4:5 respectively. If the total share of P and R is 4 times the share of Q, what is definitely Q's share?

A.2000  
B.4000  
C.6000  
D.Data inadequate  
E.None of these

**Answer & Explanation**

Answer – D.Data inadequate

**Explanation :**

Total sum not given

- Two candles of same height are lighted at the same time. The first is consumed in 3 hours and second in 2 hours. Assuming that each candle burns at a constant rate, in how many hours after being lighted, the ratio between the first and second candles becomes 2:1?

A.2 hour  
B.2.5 hour  
C.4 hour  
D.4.5 hour  
E.None of these

**Answer & Explanation**

Answer – D.4.5 hour

**Explanation :**

Height of both candles are same i.e. h

First one takes 6 hours to burn completely, so in one hour =  $h/3$

Similarly second one will burn in one hour =  $h/2$

Let after t time, ratio between their height is 2:1

so, remaining height of first candle =  $h - t*(h/3)$

similarly for second candle =  $h - t*(h/2)$

ratio given 2:1,

$$h - t*(h/3) / h - t*(h/2) = 2/1$$

Solving we get  $t = 9/2 = 4.5$

- If A and B together have a certain amount X and if  $4/15$  of A's amount is equal to  $2/5$  of B's amount, which of the following is true?

A.A = 1767; X = 2675  
B.B = 1070; X = 2895  
C.A = 1767; X = 2945  
D.B = 1158; X = 2585  
E.A = 1605; X = 2945

**Answer & Explanation**

Answer – C.A = 1767; X = 2945

**Explanation :**

$$\frac{4}{15} * A = \frac{2}{5} * B$$

$$A = \frac{2}{3} B;$$

$$A:B = 3:2;$$

$$A = \frac{3}{5} * 2945 = 1767$$

- A sum of Rs.4880 was divided among boys and girls in such a way that each boy gets Rs.44.50 and each girl get Rs. 55.25. If the total number of girls and boys is 100, find the number of girls?

A.60

B.50

C.40

D.30

E.None of these

**Answer & Explanation**

Answer – C.40

**Explanation :**

$$x+y=100 \quad \text{(i)}$$

$$44.50x + 55.25y = 4880 \quad \text{(ii)}$$

Solving (i) and (ii) Y = 40

- The income of Vinay and Prakash are in the ratio of 4:5 and their expenditure is in the ratio of 2:3. If each of them saves 5000, then find their income.

A.11000, 8550

B.12000, 7750

C.15000, 8750

D.13000, 9780

E.None of these

**Answer & Explanation**

Answer – C.15000, 8750

**Explanation :**

$$4x - 2y = 5000 \text{ and } 5x - 3y = 5000.$$

$$X = 8750, \text{ so income} = 8750 \text{ and } 15000$$

- If the ratio of the first to second is 2:3 and that of the second to the third is 5: 8, then which of the following is true,

A.Sum = 98; A = 48

B.Sum = 147; B = 30

C.Sum = 147; C = 45

D.Sum = 98; B = 30

E.Sum = 98; C = 72

**Answer & Explanation**

Answer – D.Sum = 98; B = 30

**Explanation :**

$$A:B:C = 10:15:24$$

$$\text{If sum} = 98, B = \frac{15}{49} * 98 = 30$$

- A bag contains 25p coins, 50p coins and 1 rupee coins whose values are in the ratio of 8:4:2. If the total values of coins is X and the total amount in rupees is Y, then which of the following is true

- A. X = 840; Y = 260
- B. X = 966; Y = 345
- C. X = 840; Y = 280
- D. X = 740; Y = 260
- E. None of these

**Answer & Explanation**

Answer – C. X = 840; Y = 280

**Explanation :**

Value is given in the ratio 8:4:2.

$$(8x/0.25) + (4x/0.5) + (2x/1) = 840.$$

$$X = 20. \text{ Total amount, } Y = 14*20 = 280$$

- In a school the number of boys and girls are in the ratio of 4:7. If the number of boys are increased by 25% and the number of girls are increased by 15%. What will be the new ratio of number of boys to that of girls?

- a) 100:131
- b) 100:151
- c) 100:161
- d) 100:181
- e) None of these

**Answer & Explanation**

Answer – c) 100:161

**Explanation :**

Boys = 4x and girls = 7x

$$\text{Ratio} = 4x*125/100 : 7x*115/100 = 100:161$$

- When 40% percent of a number is added to another number the second number increases to its 20%. What is the ratio between the first and second number?

- a) 2:1
- b) 1:2
- c) 2:3
- d) 3:4
- e) None of these

**Answer & Explanation**

Answer – b) 1:2

**Explanation :**

$$(40/100)*a + b = (120/100)*b$$

$$a:b = 1:2$$

- An amount of money is to be distributed among P, Q and R in the ratio of 5:4:7 respectively. If the total share of P and R is 3 times the share of Q, what is definitely Q's share?

- a) 2000

- b) 4000
- c) 6000
- d) data inadequate
- e) None of these

**Answer & Explanation**

Answer – d) data inadequate

**Explanation :**

Total sum not given

- **Two candles of same height are lighted at the same time. The first is consumed in 6 hours and second in 4 hours. Assuming that each candle burns at a constant rate, in how many hours after being lighted, the ratio between the first and second candles becomes 2:1?**

- a) 1 hour
- b) 2 hour
- c) 3 hour
- d) 4 hour
- e) None of these

**Answer & Explanation**

Answer – c) 3 hour

**Explanation :**

Let height of both candles is 'h' and let after t times ratio between the height be 2:1

$$h - t \cdot h/6 : h - t \cdot h/4 = 2:1$$

$$t = 3$$

- **An employer reduces the number of his employees in the ratio of 7:4 and increases their wages in the ratio 3:5. State whether his bill of total wages increases or decreases and in what ratio.**

- a) increases 20:21
- b) decreases 21:20
- c) increases 21:22
- d) decreases 22:21
- e) None of these

**Answer & Explanation**

Answer – b) decreases 21:20

**Explanation :**

Let initial employees be  $7x$  and then  $4x$  similarly initial wages be  $3y$  and then  $5y$

so total wage =  $21xy$  initially and then  $20xy$

so wages decreases and ratio = 21:20

- **A vessel contains milk and water in the ratio of 4:3. If 14 litres of the mixture is drawn and filled with water, the ratio changes to 3:4. How much milk was there in the vessel initially?**

- a) 24
- b) 32
- c) 40
- d) 48
- e) None of these

**Answer & Explanation****Answer – b) 32****Explanation :** $\text{milk} = 4x \text{ and water} = 3x$  $\text{milk} = 4x - 14*4/7 \text{ and water} = 3x - 14*3/7 + 14$  $4x - 8 : 3x + 8 = 3:4$  $X = 8, \text{ so milk} = 8*4 = 32 \text{ litres}$ 

- **The ratio of two numbers is 3:4. If 3 is subtracted from both the numbers, the ratio becomes 1:2. Find the sum of the two numbers?**

- a) 9
- b) 10.5
- c) 11.5
- d) 12
- e) None of these

**Answer & Explanation****Answer – b) 10.5****Explanation :**

$$(3x - 3)/(4x - 3) = 1/2$$

$$x = 1.5$$

$$\text{sum of the numbers} = 7*1.5 = 10.5$$

- **The sum of three numbers is 210. If the ratio between the first and second number be 2:3 and that between the second and third be 4:5, then the difference between the first and third number?**

- a) 21
- b) 35
- c) 42
- d) 56
- e) None of these

**Answer & Explanation****Answer – c) 42****Explanation :**

$$a:b = 2:3 \text{ and } b:c = 4:5$$

$$a:b:c = 8:12:15$$

$$\text{Difference between first and third number} = (7/35)*210 = 42$$

- **A bag contains 25p coins, 50p coins and 1 rupee coins whose values are in the ratio of 8:4:2. The total values of coins are 840. Then find the total amount in rupees.**

- a) 220
- b) 240
- c) 260
- d) 280
- e) None of these

**Answer & Explanation****Answer – d) 280****Explanation :**

Value is given in the ratio 8:4:2.

$$(8x/0.25) + (4x/0.5) + (2x/1) = 840.$$

$$X = 20. \text{ Total amount} = 14*20 = 280$$

- The income of Neha and Hitesh are in the ratio of 4:5 and their expenditure is in the ratio of 2:3. If each of them saves 2000, then find their income.**

- 4000, 6000
- 4000, 5000
- 5000, 4000
- 5000, 6000
- None of these

#### Answer & Explanation

Answer – b) 4000, 5000

#### Explanation :

$$4x - 2y = 2000 \text{ and } 5x - 3y = 2000.$$

$$X = 1000, \text{ so income} = 4000 \text{ and } 5000$$

- A company reduces his employee in the ratio 14 : 12 and increases their wages in the ratio 16:18, Determine whether the bill of wages increases or not and in what ratio.**

- Decreases, 28: 27
- Increases, 27:28
- Decreases, 29:28
- Increases, 28:29
- None of these

#### Answer & Explanation

Answer – a) Decreases, 28: 27

#### Explanation :

Let initial employee be 14a and final employee be 12a similarly initial wage is 16b and final wage be 18b

$$\text{Total initial wage} = 14a * 16b = 224ab, \text{ total final wage} = 12a * 18b = 216ab$$

$$\text{So clearly wages decreases and ratio} = 224ab : 216ab = 28:27$$

- A bucket contains liquid A and B in the ratio 4:5. 36 litre of the mixture is taken out and filled with 36 litre of B. Now the ratio changes to 2:5. Find the quantity of liquid B initially.**

- 55ltr
- 56ltr
- 57ltr
- 58ltr
- None of these

#### Answer & Explanation

Answer – b) 56ltr

#### Explanation :

$$\text{Let A} = 4x \text{ and B} = 5x$$

$$\text{Now, A} = 4x - 36*4/9 \text{ and B} = 5x - 36*5/9 + 36 \text{ Now, ratio between A and B} = 2:5$$

$$X = 11.2 \text{ now B} = 11.2*5 = 56$$

- Two numbers are in the ratio of 5:6 and if 4 is added to the first number and 4 is subtracted from the second number then the ratio becomes 3:2. Find the difference between two numbers.

- a) 2.5
- b) 3.5
- c) 4.5
- d) 6.5
- e) None of these

**Answer & Explanation**

Answer – a) 2.5

**Explanation :**

$$(5x + 4)/ (6x - 4) = 3/2$$

- The income of riya and priya are in the ratio of 4:5 and their expenditure is in the ratio of 2:3. If each of them saves 2000, then find their income.

- a) 4000, 6000
- b) 4000, 5000
- c) 5000, 4000
- d) 5000, 6000
- e) None of these

**Answer & Explanation**

Answer – b) 4000, 5000

**Explanation :**

$$4x - 2y = 2000 \text{ and } 5x - 3y = 2000.$$

$$X = 1000, \text{ so income} = 4000 \text{ and } 5000$$

- A 50 litre of mixture contains milk and water in the ratio 2:3. How much milk must be added to the mixture so that it contains milk and water in the proportion of 3:2.

- a) 20
- b) 25
- c) 30
- d) 35
- e) None of these

**Answer & Explanation**

Answer – b) 25

**Explanation :**

$$(20 + x)/30 = 3/2$$

- Two alloys contain platinum and gold in the ratio of 1:2 and 1:3 respectively. A third alloy C is formed by mixing alloys one and alloy two in the ratio of 3:4. Find the percentage of gold in the mixture

- a) 79.2/7%
- b) 71.2/7%
- c) 73.2/7%
- d) 71.3/7%
- e) None of these

**Answer & Explanation**

**Answer – d) 71.3/7%**

**Explanation :**

Platinum =  $1/3$  and  $1/4$

gold =  $2/3$  and  $3/4$

Alloy one and two are mixed in the ratio of  $3:4$ , so ratio of platinum and gold in final ratio =  $2:5$

So gold % =  $(5/7)*100$

- The sum of three numbers is 980. If the ratio between first and second number is  $3:4$  and that of second and third is  $3:7$ . Find the difference between first and last number.

a) 380

b) 360

c) 340

d) 400

e) None of these

**Answer & Explanation**

**Answer – a) 380**

**Explanation :**

ratio between three numbers =  $9:12:28$

$49x = 980$ ,  $x = 20$  difference between number =  $19*20 = 380$

- The ratio between number of girls and boys in a school is  $5:6$ . If 40 percent of the boys and 20 percent of the girls are scholarship holders, what percentage of the students does not get scholarship?

a) 68%

b) 69%

c) 71%

d) 80%

e) None of these

**Answer & Explanation**

**Answer – b) 69%**

**Explanation :**

Girls =  $5x$  and boys =  $6x$

Girls that don't get scholarship =  $5x * 80/100 = 4x$  and boys that don't get scholarship =  $6x * 60/100 = 3.6x$

Percent students that didn't get scholarship =  $(7.6x/11x)*100 = 69$  (approx.)

- A bag contains 25p coins, 50p coins and 1 rupee coins whose values are in the ratio of  $8:4:2$ . The total values of coins are 840. Then find the total amount in rupees.

a) 220

b) 240

c) 260

d) 280

e) None of these

**Answer & Explanation**

**Answer – d) 280**

**Explanation :**

Value is given in the ratio  $8:4:2$ .

$$(8x/0.25) + (4x/0.5) + (2x/1) = 840.$$
$$X = 20. \text{ Total amount} = 14*20 = 280$$

- An amount is to be divided between A, B and C in the ratio 2:3:5 respectively. If C gives 200 of his share to B the ratio among A, B and C becomes 3:5:4. What is the total sum?

- a) 5000
- b) 6000
- c) 7000
- d) 8000
- e) None of these

**Answer & Explanation**

Answer – b) 6000

**Explanation :**

$$8x, 3x + 200, 5x - 200$$

$$2x/(3x + 200) = 3/5, \text{ we will get } x = 600, \text{ so total amount} = 10*600 = 6000$$

- A bag contains 25p coins, 50p coins and 1 rupee coins whose values are in the ratio of 8:4:2. The total values of coins are 840. Then find the total number of coins

- A.220
- B.240
- C.260
- D.280
- E.None of these

**Answer & Explanation**

Answer – D.280

**Explanation :**

Value is given in the ratio 8:4:2.

$$(8x/0.25) + (4x/0.5) + (2x/1) = 840.$$

$$X = 20. \text{ Total amount} = 14*20 = 280$$

- Two vessels contains equal quantity of solution contains milk and water in the ratio of 7:2 and 4:5 respectively. Now the solutions are mixed with each other then find the ratio of milk and water in the final solution?

- A.11:7
- B.11:6
- C.11:5
- D.11:9

- E.None of these

**Answer & Explanation**

Answer – A.11:7

**Explanation :**

milk = 7/9 and water = 2/9 – in 1<sup>st</sup> vessel

milk = 4/9 and water = 5/9 – in 2<sup>nd</sup> vessel

$$(7/9 + 4/9)/(2/9 + 5/9) = 11:7$$

- Two alloys contain gold and silver in the ratio of 3:7 and 7:3 respectively. In what ratio these alloys must be mixed with each other so that we get a alloy of gold and silver in the ratio of 2:3?

A.2:1  
B.3:1  
C.4:3  
D.3:5  
E.None of these

**Answer & Explanation**

Answer – B.3:1

**Explanation :**

Gold = 3/10 and silver = 7/10 – in 1<sup>st</sup> vessel

gold = 7/10 and silver = 3/10 – in 2<sup>nd</sup> vessel

let the alloy mix in K:1, then

$(3k/10 + 7/10) / (7k/10 + 3/10) = 2/3$ . Solve this equation , u will get K = 3

- The sum of three numbers is 123. If the ratio between first and second numbers is 2:5 and that of between second and third is 3:4, then find the difference between second and the third number.

A.12  
B.14  
C.15  
D.17  
E.None of these

**Answer & Explanation**

Answer – C.15

**Explanation :**

a:b = 2:5 and b:c = 3:4 so a:b:c = 6:15:20

$41x = 123$ ,  $X = 3$ . And  $5x = 15$

- If 40 percent of a number is subtracted from the second number then the second number is reduced to its 3/5. Find the ratio between the first number and the second number.

A.1:3  
B.1:2  
C.1:1  
D.2:3  
E.None of these

**Answer & Explanation**

Answer – C.1:1

**Explanation :**

$[ b - (40/100)a ] = (3/5)b$ .

So we get  $a = b$ .

- The ratio between the number of boys and girls in a school is 4:5. If the number of boys are increased by 30 % and the number of girls increased by 40 %, then what will the new ratio of boys and girls in the school.

A.13/35

B.26/35

C.26/41

D.23/13

E.None of these

**Answer & Explanation**

Answer – B.26/35

**Explanation :**

boys =  $4x$  and girls =  $5x$ .

$$\text{Required ratio} = [(130/100)*4x]/[(140/100)*5x]$$

- One year ago the ratio between rahul salary and rohit salary is 4:5. The ratio between their individual salary of the last year and current year is 2:3 and 3:5 respectively. If the total current salary of rahul and rohit is 4300. Then find the current salary of rahul.

A.1200

B.1800

C.1600

D.2000

E.None of these

**Answer & Explanation**

Answer – B.1800

**Explanation :**

$4x$  and  $5x$  is the last year salary of rahul and rohit respectively

Rahul last year to rahul current year =  $2/3$

Rohit last year to rohit current year =  $3/5$

Current of rahul + current of rohit = 4300

$$(3/2)*4x + (5/3)*5x = 4300.$$

$$X = 300.$$

$$\text{So rahul current salary} = 3/2 * 4 * 300 = 1800$$

- A sum of 12600 is to be distributed between A, B and C. For every rupee A gets, B gets 80p and for every rupee B gets, C get 90 paise. Find the amount get by C.

A.3200

B.3600

C.4200

D.4600

E.None of these

**Answer & Explanation**

Answer – B.3600

**Explanation :**

Ratio of money between A and B – 100:80 and that of B and C – 100:90

so the ratio between A : B : C – 100:80:72

$$\text{so } 252x = 12600, x = 50. \text{ So C get} = 50*72 = 3600$$

- The sum of the squares between three numbers is 5000. The ratio between the first and the second number is 3:4 and that of second and third number is 4:5. Find the difference between first and the third number.

A.20

- B.30  
C.40  
D.50  
E.None of these

**Answer & Explanation**

Answer – A.20

**Explanation :**

$$a^2 + b^2 + c^2 = 5000$$

$$a:b:c = 3:4:5$$

$$50x^2 = 5000.$$

$$X = 10.$$

$$5x - 3x = 2*10 = 20$$

- The ratio between two numbers is 7:5. If 5 is subtracted from each of them, the new ratio becomes 3:5. Find the numbers.

A.7/2, 5/2

B.3/2, 7/2

C.9/2, 7/2

D.11/2, 5/2

E.None of these

**Answer & Explanation**

Answer – A.7/2, 5/2

**Explanation :**

$$(7x - 5)/(5x - 5) = 3/5$$

X = 1/2 so the numbers are 7/2 and 5/2

- Three cars travel same distance with speeds in the ratio 2 : 4 : 7. What is the ratio of the times taken by them to cover the distance?

A) 12 : 6 : 7

B) 14 : 7 : 4

C) 10 : 5 : 9

D) 7 : 4 : 14

E) 14 : 10 : 7

**Answer & Explanation**

B) 14 : 7 : 4

**Explanation:**

$$s = d/t$$

Since distance is same, so ratio of times:

$$1/2 : 1/4 : 1/7 = 14 : 7 : 4$$

- Section A and section B of 7th class in a school contains total 285 students. Which of the following can be a ratio of the ratio of the number of boys and number of girls in the class?

A) 6 : 5

B) 10 : 9

C) 11 : 9

- D) 13 : 12  
 E) Cannot be determined

**Answer & Explanation****B) 10 : 9****Explanation:**

The number of boys and girls cannot be in decimal values, so the denominator should completely divide number of students (285).

Check each option:

- $6+5 = 11$ , and 11 does not divide 285 completely.  
 $10+9 = 19$ , and only 19 divides 285 completely among all.

- **180 sweets are divided among friends A, B, C and D in which B and C are brothers also such that sweets divided between A and B are in the ratio 2 : 3, between B and C in the ratio 2 : 5 and between C and D in ratio 3 : 4. What is the number of sweets received by the brothers together?**

- A) 78  
 B) 84  
 C) 92  
 D) 102  
 E) 88

**Answer & Explanation****B) 84****Explanation:**

$$A/B = N1/D1 \quad B/C = N2/D2 \quad C/D = N3/D3$$

$$A : B : C : D = N1*N2*N3 : D1*N2*N3 : D1*D2*N3 : D1*D2*D3$$

$$A/B = 2/3 \quad B/C = 2/5 \quad C/D = 3/4$$

$$A : B : C : D$$

$$2*2*3 : 3*2*3 : 3*5*3 : 3*5*4$$

$$4 : 6 : 15 : 20$$

$$B \text{ and } C \text{ together} = [(6+15)/(4+6+15+20)] * 180$$

- **Number of students in 4th and 5th class is in the ratio 6 : 11. 40% in class 4 are girls and 48% in class 5 are girls. What percentage of students in both the classes are boys?**

- A) 62.5%  
 B) 54.8%  
 C) 52.6%  
 D) 55.8%  
 E) 53.5%

**Answer & Explanation****B) 54.8%****Explanation:**

$$\text{Total students in both} = 6x + 11x = 17x$$

$$\text{Boys in class 4} = (60/100)*6x = 360x/100$$

$$\text{Boys in class 5} = (52/100)*11x = 572x/100$$

$$\text{So total boys} = 360x/100 + 572x/100 = 932x/100 = 9.32x$$

$$\% \text{ of boys} = [9.32x/17x] * 100$$

- Consider two alloys A and B. 50 kg of alloy A is mixed with 70 kg of alloy B. A contains brass and copper in the ratio 3 : 2, and B contains them in the ratio 4 : 3 respectively. What is the ratio of copper to brass in the mixture?

- A) 8 : 5
- B) 7 : 5
- C) 5 : 11
- D) 4 : 9
- E) 5 : 7

**Answer & Explanation**

- E) 5 : 7

**Explanation:**

$$\text{Brass in A} = \frac{3}{5} * 50 = 30 \text{ kg}, \text{Brass in B} = \frac{4}{7} * 70 = 40 \text{ kg}$$

$$\text{Total brass} = 30 + 40 = 70 \text{ kg}$$

$$\text{So copper in mixture is } (50+70) - 70 = 50 \text{ kg}$$

$$\text{So copper to brass} = 50 : 70$$

- Ratio of A and B is in the ratio 5 : 8. After 6 years, the ratio of ages of A and B will be in the ratio 17 : 26. Find the present age of B.

- A) 72
- B) 65
- C) 77
- D) 60
- E) None of these

**Answer & Explanation**

- A) 72

**Explanation:**

$$A/B = 5/8, A+6/B+6 = 17/26$$

$$\text{Solve both, } B = 72$$

- A bag contains 25p, 50p and 1Re coins in the ratio of 2 : 4 : 5 respectively. If the total money in the bag is Rs 75, find the number of 50p coins in the bag.

- A) 45
- B) 50
- C) 25
- D) 40
- E) None of these

**Answer & Explanation**

- D) 40

**Explanation:**

$$2x, 4x, 5x$$

$$(25/100)*2x + (50/100)*4x + 1*5x = 75$$

$$x = 10, \text{ so } 50 \text{ p coins} = 4x = 40$$

- A is directly proportional to B and also directly proportional to C. When B = 6 and C = 2, A = 24. Find the value of A when B = 8 and C = 3.

- A) 42
- B) 40

- C) 58
- D) 48
- E) None of these

**Answer & Explanation****D) 48****Explanation:**

A directly proportional B, A directly proportional to C:

$$A = kB, A = kC$$

Or  $A = kBC$

When  $B = 6$  and  $C = 2$ ,  $A = 24$ :

$$24 = k \cdot 6 \cdot 2$$

$$k = 2$$

Now when  $B = 8$  and  $C = 3$ :

$$A = 2 \cdot 8 \cdot 3$$

- **A is directly proportional to B and also inversely proportional to the square of C. When  $B = 16$  and  $C = 2$ ,  $A = 36$ . Find the value of A when  $B = 32$  and  $C = 4$ .**

**A) 25****B) 20****C) 18****D) 32**

- E) None of these

**Answer & Explanation****C) 18****Explanation:**

$$A = kB, A = k/C^2$$

Or  $A = kB/C^2$

When  $B = 16$  and  $C = 2$ ,  $A = 36$ :

$$36 = k \cdot 16 / 2^2$$

$$k = 9$$

Now when  $B = 32$  and  $C = 4$ :

$$A = 9 \cdot 32 / 4^2$$

- **A is directly proportional to the inverse of B and also inversely proportional to C. When  $B = 36$  and  $C = 9$ ,  $A = 42$ . Find the value of A when  $B = 64$  and  $C = 21$ .**

**A) 24****B) 40****C) 32****D) 48**

- E) None of these

**Answer & Explanation****A) 24****Explanation:**

$$A = k\sqrt{B}, A = k/C$$

Or  $A = k\sqrt{B}/C$

When  $B = 36$  and  $C = 9$ ,  $A = 42$ :

$$42 = k\sqrt{36}/9$$

$$k = 63$$

Now when B = 64 and C = 21:

$$A = 63 * \sqrt{64/21}$$

- 

**Divide Rs.2340 into three parts, such that first part be double that of second part and second part be 1/3 of the third part.Find the Third part amount?**

- A.Rs.780
- B.Rs.1170
- C.Rs.750
- D.Rs.390
- E.None of these

**Answer & Explanation**

Answer – B.Rs.1170

**Explanation :**

First: Second: Third = 2:1:3

$$\text{Third part} = 3 * 2340 / 6 = 1170$$

- **The ratio of income of A and B is 2:3. The sum of their expenditure is Rs.8000 and the amount of savings of A is equal to the amount of expenditure of B.What is the their ratio of sum of income to their sum of savings?**

- A.5:3
- B.3:2
- C.4:3
- D.3:1
- E.None of these

**Answer & Explanation**

Answer -A.5:3

**Explanation :**

$$2I - E + E = 8000$$

$$I = 4000$$

$$\text{Sum of their Income} = 5 * I = 5 * 4000 = 20,000$$

$$\text{Sum of their Savings} = 20000 - 8000 = 12,000$$

$$20000:12000 = 5:3$$

- **There are 2 containers of equal capacity. The ratio of milk to water in the first container is 4:5 and in the second container is 3:7.If they are mixed up then the ratio of milk to water in the mixture will be**

- A.17:63
- B.65:96
- C.34:75
- D.67:113
- E.None of these

**Answer & Explanation**

Answer – D.67:113

**Explanation :**

$$4+5 = 9 \Rightarrow 40:50$$

$$3+7 = 10 \Rightarrow 27:63$$

$$40+27 : 50:63 = 67:113$$

- There are two numbers. When 25% of the first number is added to the second number, the resultant number is 1.5 times the first number. What is the ratio of 1<sup>st</sup> number to the 2<sup>nd</sup> number ?

A.3:5

B.5:4

C.4:5

D.2:3

E.None of these

**Answer & Explanation**

Answer – C.4:5

**Explanation :**

$$A + 25/100 + B = 1.5A$$

$$A/4 + B = 15A/10$$

$$10A + 40B/40 = 60A/40$$

$$10A + 40B = 60A$$

$$50A = 40B$$

$$A/B = 4/5$$

- A bag contains 10p, 25p and Rs50p coins in the ratio of 5:2:1 respectively. If the total money in the bag is Rs.120. Find the number of 25p coins in that bag?

A.160

B.130

C.110

D.90

E.None of these

**Answer & Explanation**

Answer – A.160

**Explanation :**

$$10*5 : 25*2 : 50*1 = 50:50:50 = 1:1:1$$

$$120/3 = \text{Rs.}40$$

$$\text{Rs. } 1 = 4$$

$$\text{Rs.}40 = 4*40 = 160 \text{ coins}$$

- The ratio of Ganesh's age and his mother's age is 5:12. The difference of their ages is 21. The ratio of their ages after 4 years will be

A.3:7

B.6:11

C.4:7

D.19:40

E.None of these

**Answer & Explanation**

Answer – D.19:40

**Explanation :**

$$12x - 5x = 21$$

$$7x = 21$$

$$X = 3$$

$$5:12 = 15:36$$

$$\text{After 4 years} = 19:40$$

- The ratio of students of three classes is 2:3:4. If 12 students are increased in each classes then their ratio turns into 13:18:23. What was the total number of students in all the three classes originally ?

A.250

B.215

C.225

D.190

E.None of these

**Answer & Explanation**

Answer – C.225

**Explanation :**

$$50:75:100$$

15 students increased

$$65:90:115 \Rightarrow 13:18:23$$

$$\text{Total no of students} = 50+75+100 = 225$$

- Ravi and Govind have money in the ratio 5 : 12 and Govind and Kiran also have money in the same ratio 5 : 12. If Ravi has Rs. 500, Kiran has

A.Rs.2500

B.Rs.2880

C.Rs.1850

D.Rs.3100

E.None of these

**Answer & Explanation**

Answer – B.Rs.2880

**Explanation :**

$$\text{Ravi : Kiran} = 5/12 * 5/12 = 25/144$$

$$\text{Kiran} = 144 * 500 / 25 = 2880$$

- A town with a population of 1000 has provision for 30days, after 10 days 600 more men added, how long will the food last at the same rate ?

A.12 days

B.14  $\frac{1}{2}$  days

C.12  $\frac{1}{2}$  days

D.15 days

E.None of these

**Answer & Explanation**

Answer – C.12  $\frac{1}{2}$  days

**Explanation :**

$$1000 * 20 / 1600 = 12 \frac{1}{2} \text{ days}$$

- A man spends Rs.2480 to buy lunch box Rs.120 each and bottles at Rs.80 each, What will be the ratio of maximum number of bottles to lunch box are bought ?

- A.13:12
- B.11:13
- C.9:12
- D.7:10
- E.None of these

**Answer & Explanation**

Answer – A.13:12

**Explanation :**

Check the ans using option

$$13*80 + 12*120 = 1040 + 1440 = 2480$$

# 100+ AVERAGE QUESTIONS WITH SOLUTIONS

[ ADDA.COM ]

**The average weight of 39 Students in a class is 23. Among them Sita is the heaviest while Tina is the lightest. If both of them are excluded from the class still the average remains same. The ratio of weight of Sita to Tina is 15:8. Then what is the weight of the Tina?**

1. 15
2. 16
3. 18
4. 19
5. Cannot be determined

#### Answer & Explanation

Answer – 2. 16

#### Explanation :

$$S+T = 23 * (39-37) = 46$$

$$S/T = 15/8$$

$$T = 16$$

• The ages of Four members of a family are in the year 2010 are ‘X’, ‘X+12’, ‘X+24’ and ‘X+36’. After some years Oldest among them was dead then average reduced by 3. After how many years from his death, the average age will same as in 2010?

1. 2 Years
2. 3 Years
3. 4 years
4. 6 Years
5. Cannot be determined

#### Answer & Explanation

Answer – 2. 3 Years

#### Explanation:

$$\text{In 2010: } 4x + 72 / 4 = x + 18$$

$$\text{After death: } 3x + 36 + 3N / 3 = x + 18 - 3$$

$$N = 3 \text{ years}$$

$$3x + 36 + 3N / 3 = (x + 18)$$

$$N = 6 \text{ years}$$

$$6 - 3 = 3 \text{ years from his death}$$

• The average of Four numbers is 24.5. of the four numbers, the first is 1.5 times the second, the second is  $\frac{1}{3}$  rd of the third, and the third is 2 times the fourth number. Then what is smallest of all those

numbers?

1. 12
2. 13
3. 14
4. 15
5. 16

#### Answer & Explanation

Answer – 3. 14

#### Explanation:

$$\text{First} = 1.5x \text{ Second} = x \text{ Third} = 3x \text{ Fourth} = 1.5x$$

$$\text{average} = 24.5 = (1.5x + x + 3x + 1.5x) / 4$$

$$x = 14$$

• There are 459 students in a hostel. If the number of students increased by 36, the expenses of the mess increased by Rs .81 Per day while the average expenditure per head reduced by 1. Find the original expenditure of the mess?

1. 7304
2. 7314
3. 7324
4. 7334
5. 7344

#### Answer & Explanation

Answer – 5. 7344

#### Explanation:

$$\text{Total expenditure} = 459x$$

$$36 \text{ students joined then total expenditure} = 459x + 81$$

$$\text{average} = 459x + 81 / 495 = x - 1$$

$$x = 16$$

$$\text{original expenditure} = 16 * 459 = 7344$$

• The average cost 32 different Mobiles is Rs. 9000. Among them, Oppo which is the costliest is 70% higher price than the cheapest Mobile Lava. Excluding those both mobiles, the average of the Mobiles is Rs.8880. Then what is the cost of Oppo Mobile?

1. Rs. 10000
2. Rs. 11600
3. Rs. 12400
4. Rs.13600
5. Cannot be determined

**Answer & Explanation****Answer – 4. Rs.13600****Explanation:**

$$L+O = 21600$$

$$O = L*170/100$$

$$O = 13600$$

- The average age of a family of 9 members is 22 years. Surya is the youngest and his age is 6 years, then what was the average age of the family just before Surya was born?**

1. 15
2. 16
3. 18
4. 20
5. 24

**Answer & Explanation****Answer – 3. 18****Explanation:**

$$9*22 - 9*6/8 = 18$$

- Dhoni scored 8000 runs in a certain number of innings. In the next five innings, he was out of form and hence, could make only 85 runs, as a result his average reduced by 1 run. How many innings did he play in total?**

1. 160
2. 165
3. 170
4. 175
5. Can

**Answer & Explanation****Answer – 2. 165****Explanation:**

$$8000/n = a$$

$$8085/(n+5) = a-1$$

$$n^2 + 90n - 40000 = 0$$

$$n = 160$$

$$n^2 + 5 = 165$$

- The weights of 19 people are in Arithmetic progression. The average weight of them is 19. If the heaviest is 37 Kgs. Then what is the weight of the Lightest?**

1. 1 Kg
2. 2 Kg
3. 3 Kg
4. 4 kg
5. Cannot be determined

**Answer & Explanation****Answer – 1. 1 Kg****Explanation:**

$$19*19 = 19/2(2a+18d)$$

$$38 = 2a+18d$$

$$37 = a+18d$$

$$a = 1$$

- The average weight of 40 Students is 32. If the Heaviest and Lightest are excluded the average weight reduces by 1. If only the Heaviest is excluded then the average is 31. Then what is the weight of the Lightest?**

1. 30
2. 31
3. 32
4. 33
5. Cannot be determined

**Answer & Explanation****Answer – 2. 31****Explanation:**

$$40*32 = 1280$$

$$1280-H/39 = 31$$

$$H = 71$$

$$1280-71-L/38 = 31$$

$$L = 31$$

Average of 17 students in a class is X. When their marks are arranged in ascending order it was found to be in Arithmetic Progression. The class teacher found that rank the students who ranked 15th, 11th, 9th and 7th had copied the exam and hence they are suspended. Now the average of the remaining class is Y. Then

1. X = Y
2. X > Y
3. X < Y
4. X = 2Y
5. Data insufficient

**Answer & Explanation****Answer – 3. X<Y****Explanation:**

$$17X = 17/2 (2a+16d)$$

$$X = a+8d$$

$$13Y = 17/2(2a+16d) - (4a+26d)$$

$$Y = a+8.46d$$

- The average price of 80 mobile phones is Rs.30,000. If the highest and lowest price mobile phones are sold out then the average price of remaining 78 mobile phones is Rs. 29,500. The cost of the highest mobile is Rs.80,000. The cost of lowest price mobile is?**

- A. Rs. 18000  
 B. Rs. 15000  
 C. Rs. 19000  
 D. Can't be determined  
 E. None of these

**Answer & Explanation****Answer – C. Rs. 19000****Explanation :**

The price of the costliest and cheapest mobile =  $(80*3000) - (78*29500) = 99000$   
 Cheapest Mobile Price =  $99000 - 80000 = 19000$

- In a Company the average income of all the employees is Rs. 20000 per month.**

Recently the company increased the income of all the employees. The new average income of all the employees is?

- A. 22000  
 B. 24000  
 C. 28000  
 D. 26000  
 E. None of these

**Answer & Explanation****Answer – A. 22000****Explanation:**

Average income of all employees = 20000  
 New Average income of all employees = 22000(Average also increased by 2000)

- Pranav went to the bank at the speed of 60 kmph while returning for his home he covered the half of the distance at the speed of 10 kmph, but suddenly he realized that he was getting late so he increased the speed and reached the home by covering rest half of the distance at the speed of 30 kmph. The average speed of the Pranav in the whole length of journey is?**

- A. 24 kmph  
 B. 14 kmph  
 C. 16 kmph  
 D. 10 kmph  
 E. 28 kmph

**Answer & Explanation****Answer – A. 24 kmph****Explanation:**

Distance between home and Bank – x km  
 Total distance =  $x + x = 2x$   
 Total time taken =  $x/60 + (x/2)/10 + (x/2)/30 = x/12$   
 Average speed =  $2x/(x/12) = 24$  kmph

- The average expenditure of Sharma for the January to June is Rs. 4200 and he spent Rs. 1200 in January and Rs.1500 in July. The average expenditure for the months of February to July is:**

- A. 2750  
 B. 3250  
 C. 4250  
 D. 4500  
 E. 3500

**Answer & Explanation****Answer – C. 4250****Explanation:**

Total Expenditure(Jan – June) =  $4200 * 6 = 25200$   
 Total Expenditure(Feb – June) =  $25200 - 1200 = 24000$   
 Total Expenditure(Feb – July) =  $24000 + 1500 = 25500/6 = 4250$

- The average weight of all the 11 players of CSK is 50 kg. If the average of first six lightest weight players of CSK is 49 kg**

and that of the six heaviest players of CSK is 52 kg. The average weight of the player which lies in the sixth position in the list of players when all the 11 players of CSK are arranged in the order of increasing or decreasing weights.

- A. 54 kg
- B. 50 kg
- C. 53 kg
- D. 56 kg
- E. 52 kg

#### Answer & Explanation

Answer – D. 56 kg

#### Explanation:

Average of First six players =  $49 * 6 = 294$   
 Average of Last six players =  $52 * 6 = 312$ ;  
 Average of all players =  $50 * 11 = 550$   
 Average weight of sixth player =  $294 + 312 - 550 = 56$

- The average presence of students of a class in a College on Monday, Tuesday and Wednesday is 32 and on the Wednesday, Thursday, Friday and Saturday is 30. if the average number of students on all the six days is 26 then the number of students who attended the class on Wednesday is?

- A. 50
- B. 40
- C. 60
- D. 70
- E. 80

#### Answer & Explanation

Answer – C. 60

#### Explanation:

$$32 * 3 + 30 * 4 - 26 * 6 = 96 + 120 - 156 = 60$$

- Suresh started his journey from P to Q by his bike at the speed of 40 kmph and then, the same distance he travelled on his foot at the speed of 10 kmph from Q to R. Then he returned from R to P via Q at the speed of 24 kmph. The average speed of the whole trip is:

- A. 18.5 kmph

- B. 19.8 kmph
- C. 18.2 kmph
- D. 19.2 kmph
- E. None of these

#### Answer & Explanation

Answer – D. 19.2 kmph

#### Explanation:

$$\text{Average speed from P to R} = \frac{2 * 40 * 10}{(40 + 10)} = 16 \text{ kmph}$$

$$\text{Average Speed} = \frac{2 * 16 * 24}{(16 + 24)} = 19.2 \text{ kmph}$$

- Ramesh walked 6 km to reach the station from his house, then he boarded a train whose average speed was 60 kmph and thus he reached his destination. In this way he took a total time of 3 hours. If the average speed of the entire journey was 32 kmph then the average speed of walking is:

- A. 5 kmph
- B. 8 kmph
- C. 2 kmph
- D. 4 kmph
- E. None of these

#### Answer & Explanation

Answer – D. 4 kmph

#### Explanation:

$$\text{Total Distance} = 32 * 3 = 6 + 60 * x \\ x = 1.5 \text{ hour} ; \text{Walking Speed} = 6/1.5 = 4 \text{ kmph}$$

Bala travels first one-third of the total distance at the speed of 10 kmph and the next one-third distance at the speed of 20 kmph and the last one – third distance at the speed of 60 kmph. What is the average speed of Bala?

- A. 18 kmph
- B. 19 kmph
- C. 16 kmph
- D. 12 kmph
- E. None of these

#### Answer & Explanation

Answer – A. 18 kmph

#### Explanation:

$$= 3 * 10 * 20 * 60 / (200 + 1200 + 600) \\ = 18 \text{ kmph}$$

- The average income of Arun, Bala and Chitra is Rs. 12,000 per month and average income of Bala, Chitra and David is Rs. 15,000 per month. If the average salary of David be twice that of Arun, then the average salary of Bala and Chitra is in Rs?**

- A. 15,000  
 B. 20,000  
 C. 14500  
 D. 13500  
 E. None of these

#### Answer & Explanation

Answer – D. 13500

#### Explanation:

$$\begin{aligned} \text{Arun} + \text{Bala} + \text{Chitra} &= 12000 * 3 \\ \text{Bala} + \text{Chitra} + \text{David} &= 15000 * 3 \\ \text{David} - \text{Arun} &= 3000 * 3 = 9000 \\ \text{David} &= 2\text{Arun} \\ \text{David} &= 18000 \text{ and Arun} = 9000 \\ \text{Average salary of Bala and Chitra,} \\ &= (45000 - 18000) / 2 = 13,500 \end{aligned}$$

- The average monthly expenditure of Mr.Ravi's family for the first three months is Rs 2,750, for the next three months is Rs 2,940 and for the last three months Rs 2,150. If his family saves Rs 4980 for the whole year, then what is the average monthly expenditure for the last three months?**

- A. Rs. 3800  
 B. Rs. 3500  
 C. Rs. 3400  
 D. Rs. 4200  
 E. Rs. 4500

#### Answer & Explanation

Answer – B. Rs. 3500

#### Explanation :

Average monthly expenditure for 3 months = Rs. 2750

Total expenditure for 3 months = Rs 2750 x 3 = Rs. 8250

Average monthly expenditure for 3 months = Rs. 2940

Total expenditure for 3 months = Rs 2940 x 3 = Rs. 8820

Average monthly expenditure for 3 months = Rs. 3150

Total expenditure for 3 months = Rs 3150 x 3 = Rs. 9450

Total savings for 9 months = 4980

Average monthly income for 9 months =  $(8250 + 8820 + 9450 + 4980) / 9 = 3500$

- The average age of a family of 8 members is 24 years. If the age of the youngest member be 6 years, the average age of the family at the birth of the youngest member was?**

- A. 23.42 years  
 B. 21.42 years  
 C. 27.42 years  
 D. 26.42 years  
 E. 24.42 years

#### Answer & Explanation

Answer – B. 21.42 years

#### Explanation:

Total present age of the family  $(8 * 24) = 192$  years

Total age of the family 6 years ago  $= (192 - 6 * 7) = 150$  years

At that time, Total members in the family = 7

Therefore Average age at that time  $= 150 / 7 = 21.42$  years

- Mr. Ravi's family has 10 males and a few females, the average monthly consumption of rice per head is 8 kg. If the average monthly consumption of rice per head be 10 kg in the case of males and 6 kg in the case of females, find the number of females in Ravi's family?**

- A. 2  
 B. 4  
 C. 6  
 D. 10  
 E. 8

#### Answer & Explanation

**Answer – D. 10**

**Explanation:**

Let number of females be x.

$$(10*10+x*6)/(10+x) = 8$$

$$\Rightarrow x = 10$$

- In a famous hotel the rooms were numbered from 201 to 230, each room gives an earning of Rs. 5000 for the first fifteen days of a month and for the latter half, Rs. 3000 per room. Find the average income per room per day over the month. (September)?

- A. 2000  
 B. 3000  
 C. 4000  
 D. 5000  
 E. 3500

**Answer & Explanation**

**Answer – C. 4000**

**Explanation:**

Total number of rooms = 29

$$\text{Average} = [(5000 * 30 * 15) + (3000 * 30 * 15)]/(30*30)$$

Average earning per room = 4000

- In a famous hotel, the rooms are numbered from 101 to 130 on the first floor, 201 to 220 on the second floor and 301 to 330 on the third floor. In the month of September, the room occupancy was 50% on the first floor, 80% on the second floor and 60% on the third floor. If it is known that the average earnings per room on the three floors are Rs 200, Rs. 250 and Rs. 300 on each of the floors respectively, then find the average income per room in the hotel for the month of September?

- A. Rs. 123.75  
 B. Rs. 132.50  
 C. Rs. 128.50  
 D. Rs. 143.50  
 E. Rs. 223.75

**Answer & Explanation**

**Answer – B. Rs. 132.50**

**Explanation:**

Total number of rooms in first, second and

third floor = 30, 20, 30

Occupied rooms in first, second and third floor = 15, 16, 12

$$\text{Average income} = (15 * 200 + 16 * 250 + 12 * 300)/ 80 = \text{Rs. } 132.5$$

- There were 46 students in a Boys hostel. Due to the admission of eight new students the expenses of the hostel mess were increased by Rs.42 per day while the average expenditure per head diminished by Rs 1. What was the original expenditure of the hostel mess?

- A. Rs.562  
 B. Rs.542  
 C. Rs.532  
 D. Rs.452  
 E. Rs.552

**Answer & Explanation**

**Answer – E. Rs.552**

**Explanation:**

$$54*(x-1)-46*x = 42$$

$$8x = 96$$

$$x = 12$$

Original total expenditure:

$$46*x = 46*12 = \text{Rs. } 552$$

- The average salary of the entire staff in a office is Rs 250 per month. The average salary of officers is Rs 520 and that of non-officers is Rs. 200. If the number of officers is 15, then find the number of non-officers in the office

- A. 823  
 B. 81  
 C. 87  
 D. 56  
 E. 62

**Answer & Explanation**

**Answer – B. 81**

**Explanation:**

Let the required number of non-officers = x

$$200x + 520 * 15 = 250 ( 15 + x )$$

$$250x - 200x = 520 * 15 - 250 * 15$$

$$50x = 4050$$

$$x = 81$$

- Mr.Suresh's average monthly expenditure for the first four months of the year was Rs.260 For the next five months,the average monthly expenditure was Rs.40 more than what it was during the first four months. If he spent Rs.560 in all during the remaining three months of the year, Find what percentage of his annual income of Rs.5000 did he save in the year?

- A. 42%  
B. 48%  
C. 38%  
D. 24%  
E. 28%

#### Answer & Explanation

Answer – C. 38%

#### Explanation:

Suresh's average monthly expenditure for the first four months of the year = Rs.260.  
 $260 * 4 = \text{Rs. } 1040$

For the next five months,the average monthly expenditure was Rs.40 more than what it was during the first four months. He spent  $260 + 40$  for one month  
 $In 5 \text{ months he spent } 300 * 5 = 1500$

He spent Rs.560 in all during the remaining three months of the year.

Total expenditure =  $1040 + 1500 + 560 = 3100$

Savings =  $5000 - 3100 = 1900$

% savings =  $1900/5000 * 100 = 38\%$

- The average age of a group of persons going for tour to Shimla is 22 years. 25 new persons with an average age of 10 years join the group and their average age becomes 12 years. The number of persons initially going for tour is?

- A. 10  
B. 8  
C. 7  
D. 5  
E. 4

#### Answer & Explanation

Answer – D. 5

#### Explanation:

$$\begin{aligned} \text{Initial number of persons} &= x \\ &= 22x + 25 * 10 - 12(x + 25) \\ &= 22x + 250 - 12x - 300 \\ 10x &= 50 \\ x &= 5 \end{aligned}$$

- In English exam, the average of Class "A" was found to be "x" marks. After deducting a computational error, the average marks of 100 candidates got reduced from 74 to 54. The average thus came down by 25 marks. The total numbers of candidates who took the English exam were?

- A. 50  
B. 20  
C. 80  
D. 70  
E. 60

#### Answer & Explanation

Answer – C. 80

#### Explanation:

$$\begin{aligned} (74 - 54) * 100 &= 25 * x \\ x &= 20 * 100 / 25 = 80 \end{aligned}$$

- The average salary of 90 employees in an organization is Rs.14,500 per month. If the no of executive is twice the no of clerks, then find the average salary of clerk ?

1. 11,500  
2. 12,000  
3. 13,200  
4. Can't be determined  
5. None of these

#### Answer & Explanation

Answer – 4.Can't be determined

#### Explanation :

$$\begin{aligned} 90 &\Rightarrow 2:1 \Rightarrow 60:30 \\ \text{Total Salary} &= 60 * \text{salary of executive} + 30 * \text{salary of clerk} \\ 90 * 14500 &= 60 * x + 30 * y \\ X, y \text{ not given so we can't determine} \end{aligned}$$

- The average value of property of Agil, Mugilan and Anitha is Rs.130cr. The Property of Agil is 20cr greater than the property value of Mugilan and Anitha property value is 50cr greater than the Agil property value. The value of property of Anitha is

1.120cr  
2.170cr  
3.100cr  
4.150cr  
5.None of these

**Answer & Explanation**

Answer – 2.170cr

**Explanation :**

Property value of Mugilan x  
 $130*3 = x+x+20+x+20+50$   
 $390 = 3x+90$   
 $3x=300$   
 $X=100$   
Anitha =  $100+20+50 = 170$

- If the average marks of  $1/5^{\text{th}}$  of class is 70% and  $2/5^{\text{th}}$  class is 45% and the average mark of remaining class is 60%, then the average % of the whole class is

1.73%  
2.45%  
3.62%  
4.56%  
5.None of these

**Answer & Explanation**

Answer – 4.56

**Explanation :**

Avg =  $100 * [x/5 * 70/100 + 2x/5 * 45/100 + 2x/5 * 60/100] / x$   
 $= 70+90+20/5$   
 $= 56$

- The average price of 100 mobiles in an electronic shop is Rs.27,000. If the highest and lowest mobiles are sold out then the remaining 98 mobiles average price is 26,400. The cost of lowest mobile is Rs.18,000. Find the cost of highest mobile price

1.76500

2.94800

3.96400

4.82000

5.None of these

**Answer & Explanation**

Answer – 2.94800

**Explanation :**

$$100*27000 - 98*26400 = 27,00,000 - 25,87,200 = 1,12,800$$

The cost of highest mobile price = 1,12,800  
 $- 18,000 = 94800$

- There are 10 compartments in passenger train carries on average 15 passengers per compartment. If atleast 15 passengers were sitting in each compartment, no any compartment has equal no of passengers , and any compartment does not exceed the number of average passengers except 10th compartment. Find how many passengers can be accommodated in 10<sup>th</sup>compartment ?

1.38  
2.51  
3.47  
4.50  
5.None of these

**Answer & Explanation**

Answer – 2.51

**Explanation :**

No of passengers =  $15*10 = 150$   
 $15+14+13+12+11+10+9+8+7 = 99$   
 $150 - 99 = 51$

- There are five times the number of two wheelers as there are three wheelers. The no of four wheelers are equal to the number of two wheelers. Find the average number of wheel per vehicle ?

1.5  
2.4  
3.2  
4.3  
5.None of these

**Answer & Explanation**

**Answer – 4.3**

**Explanation :**

No of 3 wheeler =  $x$ , no of wheels =  $3x$   
 No of 2 wheeler =  $5x$ , no of wheels =  $10x$   
 No of 4 wheeler =  $5x$ , no of wheels =  $20x$   
 $\text{Avg} = \frac{3x+10x+20x}{x+5x+5x} = \frac{33x}{11x} = 3$

- In a particular week the average number of people visited the museum is 70. If we exclude the holidays then the average number is increased by 28. Further if we exclude the day which the maximum of 210 visitors visited the museum, then the average become 40. Find the no of holidays in the week

- None
- One
- Three
- Two
- Can't be determined

**Answer & Explanation**

**Answer – 4.Two**

**Explanation :**

Total no of visitors in a week =  $70 * 7 = 490$   
 $X$  = no of holidays  
 Exclude hloidays  
 $(7-x) * 98 = 490$   
 $7-x = 5$   
 $X = 2$

- Arjun gets 62 marks out of 100 in English, 81 out of 120 in Chemistry and 75 out of 150 in Physics. The percentage marks obtained by him in all three subjects is
- 1.60%
  - 2.53%
  - 3.47%
  - 4.72%
  - None of these

**Answer & Explanation**

**Answer – 1.60%**

**Explanation :**

$$\begin{aligned} 62/100 &= 62\% \\ 81/120 &= 67.5\% \\ 75/150 &= 50\% \end{aligned}$$

$$\text{Avg} = \frac{62+67.5+50}{3} = \frac{179.5}{3} = 59.8 = 60\%$$

- The average salary of 120 employees in the bank is Rs.15,000 per month. If the no of assistant is thrice the no of POs and average salary of assistant is  $1/3^{\text{rd}}$  of the average salary of POs then find the average salary of POs ?

- 1.18,000
- 2.25,000
- 3.36,000
- 4.30,000
- None of these

**Answer & Explanation**

**Answer – 4.30,000**

**Explanation :**

$$\begin{aligned} 120 &= 1:3 = 30:90 = \text{PO : Assistant} \\ 120 * 15000 &= 30 * x + 90 * x/3 \\ 18,00,000 &= 90x + 90x/3 \\ 54,00,000 * 3 &= 180x \\ X &= 30000 \end{aligned}$$

- In a class of 60 students 23 are girls. The average mark of boys is 45 and average mark of girls is 52. What is the average mark of the class?

- 1.42.7
- 2.52.2
- 3.47.7
- 4.62.1
- None of these

**Answer & Explanation**

**Answer – 3.47.7**

**Explanation :**

$$\begin{aligned} 60 \text{ students} &\Rightarrow 23 \text{ G and } 37 \text{ B} \\ \text{Average} &= \frac{23 * 52 + 37 * 45}{60} \\ &= \frac{2965}{60} = 47.7 \end{aligned}$$

- The average weight of 40 students in a class is 75 kg. By mistake the weights of two students are read as 74 kg and 66 kg respectively instead of 66 kg and 54 kg. Find the corrected average weight of the class
- 73.50 kg

- b) 74.50 kg
- c) 75.50 kg
- d) 76.50 kg
- e) None of these

**Answer & Explanation**

Answer – b) 74.50 kg

**Explanation :**Weight of 40 students =  $40 \times 75$ 

$$\text{new weight} = 40 \times 75 - 74 - 66 + 66 + 54 = \\ 40 \times 75 - 20$$

$$\text{so new average} = (40 \times 75 - 20)/40 = 74.50 \text{ kg}$$

- The average weight of 40 balls is 5 grams. When the weight of the basket is added to the weight of balls, the average increased by 0.5 grams. Find the weight of the basket.

- a) 20.5 gm
- b) 22.5 gm
- c) 25.5 gm
- d) 28.5 gm
- e) None of these

**Answer & Explanation**

Answer – c) 25.5 gm

**Explanation :**

$$(40 \times 5 + B)/41 = 5.5 \text{ (B is the weight of basket)}$$

- There are 50 students in a hostel. Now the number of students got increased by 8. Due to this the expenditure of the

increased. The average expenditure is decreased by 2 rupees. Find the original expenditure.

- a) 812.5 rupees
- b) 912.5 rupees
- c) 1012.5 rupees
- d) 1112.5 rupees
- e) None of these

**Answer & Explanation**

Answer – b) 912.5 rupees

**Explanation :**

Let initial expenditure is E per day. Now it is increased by 30 rupees per day,

Initial students = 50 and now they are 58,

$$E/50 - (E + 30)/58 = 2$$

Solve for E, We will get E = 912.5 rupee.

- The average age of the class is 15 years. The average age of boys and girls is 13 and 16 years respectively. If the number of girls in the class is 18 then find the number of boys in the class.

- a) 6
- b) 8
- c) 9
- d) 12
- e) None of these

**Answer & Explanation**

Answer – c) 9

**Explanation :**

$$B*13 + 18*16 = 15*(18 + B)$$

- A cricketer has an average of 55 after playing 20 innings. How much runs should he scores in the next inning so as to increase the average to 57.

- a) 95
- b) 96
- c) 97
- d) 98
- e) None of these

**Answer & Explanation**

Answer – c) 97

**Explanation :**

Runs after 20 innings =  $55*20$ , so  $(1100 + X)/21 = 57$ , after solving we will get X = 97

- The average marks obtained by 100 candidates in an examination are 45. If the average marks of the passed students are 50 while the average marks of the failed students is 40. Then find the number of students who passed the examination.

- a) 30
- b) 40
- c) 50
- d) 60
- e) None of these

**Answer & Explanation**

**Answer – c) 50**

**Explanation :**

Let P = passed students and failed students = F. So

$$45*100 = 50*P + 40*F \text{ and } P + F = 100.$$

Solve for F and P, we will get P = 50.

- The average age of 30 students is 16 years. If the age of the teacher is also included then the average age increased by 1 year, find the age of the teacher.

- a) 45 year  
 b) 46 year  
 c) 47 year  
 d) 49 year  
 e) None of these

**Answer & Explanation**

**Answer – c) 47 year**

**Explanation :**

Teacher age is T years. So,  $30*16 + T = 31*17$

- The present average age of a family of 5 members is 40 years. If the youngest member of the family is 12 years old, then find the average age of the family at the time of birth of the youngest member.

- a) 32  
 b) 33  
 c) 34  
 d) 35  
 e) None of these

**Answer & Explanation**

**Answer – d) 35**

**Explanation :**

Present age of the family =  $5*40 = 200$  years.

12 years ago at the time of the birth of youngest member, age of family =  $200 - 12*5 = 140$ .

So average age =  $140/4 = 35$  year

- The average age of a husband and wife at the time of marriage is 22 years. After 3 years, they have a one year old child. Find the average age of the family of three at the time of birth of the child.

- a) 14 years  
 b) 15 years  
 c) 16 years  
 d) 17 years  
 e) None of these

**Answer & Explanation**

**Answer – c) 16 years**

**Explanation :**

At the time of marriage sum of the age of husband and wife = 44 years.

After three years, total age of the family =  $44 + 3 + 3 + 1 = 51$  years.

At the time of child birth, age of family =  $51 - 1 - 1 - 1 = 48$  years.

So average age =  $48/3 = 16$  years

- In a certain year the average monthly salary of a person is 5000 rupees. If for the first 7 months the average salary is 5300 and for the last 6 months, the average salary is 4600 rupees. Find the income of the person in 7th month.

- a) 3700  
 b) 4700  
 c) 5700  
 d) can't be determined  
 e) None of these

**Answer & Explanation**

**Answer – b) 4700**

**Explanation :**

Let the income of seventh month is A, then  $12*5000 = 5300*7 + 5300*6 - A$

**The average age of a husband and his wife was 25 years when they were married 7 years ago. Now the average age of husband, wife and his son is 23 years. Find the age of son now.**

- 1.3yr  
 2.4yr  
 3.5yr  
 4.6yr  
 5.None of these

**Answer & Explanation**

**Answer – 3.5yr**

**Explanation :**

$$(h+w-14)/2 = 25$$

$$H+w = 64$$

$$\text{Now, } (h+w+s)/3 = 23$$

$$S = 69-64 = 5 \text{ years}$$

- The average of 10 reading is 25.5. In this the average of first three is 20 and the next four is 26. If the eighth reading is 5 less than the ninth one and also 8 less than the tenth one, then find the eighth reading?

1.22

2.24

3.26

4.28

5.None of these

#### Answer & Explanation

Answer – 3.26

#### Explanation :

sum of all ten reading = 255

sum of first three = 60 and sum of next 4 = 104.

Sum of 8<sup>th</sup>, 9<sup>th</sup> and 10<sup>th</sup> reading = 91 = 3\*x + 13

$$X = 26$$

- The average of first and second number is 25 more than the average off the second and third number. Find the difference between the first and the third number

1.20

2.30

3.40

4.50

5.None

#### Answer & Explanation

Answer – 4.50

#### Explanation :

$$(a+b)/2 = 25 + (b+c/2)$$

- In a hostel there are 30 students and if the number of students increased by 5 then the expense is increased by 40 per day. But the average expenditure diminishes by 3. Find the original expenditure.

1.810

2.870

3.910

4.950

5.None of these

#### Answer & Explanation

Answer – 2.870

#### Explanation :

Let average expenditure be P.

$$(30*P + 40)/35 = P-3$$

$$P = 29. \text{ So expenditure} = 29*30 = 870$$

- The average age of a class is 19 years. While the average age of boys is 20 and the average age of girls is 17. If the number of boys is 20 then find the number of girls in the class

1.10

2.15

3.16

4.18

5.None of these

#### Answer & Explanation

Answer – 1.10

#### Explanation :

Average of class = 19 = Sum/(b+g)

sum (girls) = g\*17

sum (boys) = b\*20

$$19b + 19g = 17g + 20b$$

$$2g = b = 20. \text{ So girls} = 10$$

- The average age of a family of 4 members 3 years ago is 21 years. A baby is born and now the average age of the family is same as before. Find the age of baby.

1.8yrs

2.9yrs

3.10yrs

4.11yrs

5.None of these

#### Answer & Explanation

Answer – 2.9yrs

#### Explanation :

$$(X-12)/4 = 21$$

$$X = 96. \text{ Now, } (96+\text{baby})/5 = 21$$

$$\text{Baby} = 9\text{yrs}$$

- The average height of 50 students in a class is 165cm. On a particular day, three students P,Q and R are absent, so the average of the remaining students becomes 163cm. If the height of P and Q is equal and height of R is 2 cm less than P, then find the height of P.

1.187  
2.192  
3.197  
4.198  
5.None of these

#### Answer & Explanation

Answer – 3.197

#### Explanation :

sum of height (50) =  $50 \times 165 = 8250$   
 sum of height (47) =  $47 \times 163 = 7661$   
 sum of the height of P, Q and R =  $8250 - 7661 = 589$   
 $P+P+P-2 = 589$  (as height of P is equal to Q and height of R = P - 2)  
 $P = 197$

- The average age of a committee of 12 members is 48 years. A member of the committee age 62 retired and in place of him a new person aged 26 joined the committee. Find the new average of the committee.

1.44  
2.45  
3.46  
4.48  
5.None of these

#### Answer & Explanation

Answer – 2.45

#### Explanation :

Total age of committee =  $48 \times 12$   
 new total age of committee =  $(48 \times 12 - 62 + 26) / 12 = 45$

- The average weight of 12 people gets increased by 3.5kg when a person weighs 56 kg got replaced by another man. Find the weight of the new man

1.90kg  
2.92kg

3.96kg  
4.98kg  
5.None of these

#### Answer & Explanation

Answer – 4.98kg

#### Explanation :

Let the weight of new man is x kg.  
 $(12p - 56 + x) / 12 = p + 3.5$  [12p is the total weight of 12 people]  $X = 98\text{kg}$

- In an examination the average marks of risha is 74. If she got 16 more marks in hindi and 20 more marks in English then her average would have been 78. Find the total number of subjects he studied?

1.7  
2.8  
3.9  
4.10  
5.None of these

#### Answer & Explanation

Answer – 3.9

#### Explanation :

Let total subjects are P.  
 Then,  $(74p + 20 + 16)/p = 78$   
 So,  $P = 9$

- While calculating the weight of a group of men, the weight of 63 kg of one of the member was mistakenly written as 83 kg. Due to this the average of the weights increased by half kg. What is the number of men in the group?

A) 25  
B) 20  
C) 40  
D) 60  
E) 24

#### Answer & Explanation

C) 40

#### Explanation:

Increase in marks lead to increase in average by  $\frac{1}{2}$   
 $So (83-63) = x/2$   
 $x = 40$

- A cricketer had an average number of runs as 32 after playing 10-innings. If he wants to make his average run rate increased by 4, then how much runs will he have to take in his next inning?

A) 66  
B) 84  
C) 62  
D) 76  
E) 72

## Answer &amp; Explanation

D) 76

## Explanation:

Average after 10 innings = 32, so after 11 inning =  $32+4 = 36$   
So required runs =  $(36*11) - (32*10)$

- The average temperature in Delhi for the first four days of the month was reported as  $58^\circ$ . It reported as  $60^\circ$  for 2nd, 3rd, 4th and 5th days. The ratio of the temperatures of 1st and 5th day was 7 : 8. Find the temperature on the first day.

A)  $42^\circ$   
B)  $46^\circ$   
C)  $63^\circ$   
D)  $68^\circ$   
E)  $56^\circ$

## Answer &amp; Explanation

E)  $56^\circ$ 

## Explanation:

$$\begin{aligned} A+B+C+D &= 58*4 \\ B+C+D+E &= 60*4 \\ \text{Subtract both, } E - A &= 8 \\ \text{So } 8x - 7x &= 8, x = 8 \\ \text{So temperature of A(1st day)} &= 7x = 7*8 \end{aligned}$$

- For three successive years, the cost of petrol were Rs 20 per litre, Rs 22 per litre and Rs 23.50 per litre respectively. If a man spent an average of Rs 8000 per year on petrol, then he spent what average cost of petrol per litre for the three years?

A) Rs 20  
B) Rs 25.3  
C) Rs 28.2

D) Rs 21.7  
E) None of these

## Answer &amp; Explanation

D) Rs 21.7

## Explanation:

Quantity used in 1st yr =  $8000/20 = 400$  l, in 2nd yr =  $8000/22 = 363.6$ , in 3rd yr =  $340.4$  l

Total used in 3 yrs = 1104 litres, total money spent in 3 yrs =  $3*8000 = 24000$   
So average rate of 3 yrs =  $24000/1104$

- In a group of 8 boys, 2 men aged at 21 and 23 were replaced two new boys. Due to this the average cost of the group increased by 2 years. What is the average age of the 2 new boys?

A) 17  
B) 30  
C) 28  
D) 23  
E) 18

## Answer &amp; Explanation

B) 30

## Explanation:

Average of 8 boys increased by 2, this means the total age of boys increased by  $8*2 = 16$  yrs

So sum of ages of two new boys =  $21+23+16 = 60$   
Average of these =  $60/2$

The average age of the group having 3 members is 84. One more person joins the group and now the average becomes 80. Now a fifth person comes whose age is 3 years more than that of fourth person replaces the first person. After this the average age of the group becomes 79. What is the weight of the first person?

A) 75  
B) 65  
C) 68  
D) 82  
E) 85

## Answer &amp; Explanation

**A) 75****Explanation:**

Let the ages of these are A, B, C, D, E

$$\text{So } A+B+C = 84*3 = 252$$

$$\text{And } A+B+C+D = 80*4 = 320$$

$$\text{So } D = 320-252 = 68, \text{ so } E = 68+3 = 71$$

$$\text{Now } B+C+D+E = 79*4 = 316$$

$$(A+B+C+D) - (B+C+D+E) = 320 - 316$$

$$\text{So } A-E = 4, \text{ so } A = 71+4$$

- 3 years ago, the average age of A, B, and C was 27 years. Also 5 years ago, the average age of B and C was 20 years.

**What is the present age of A?**

**A) 42****B) 40****C) 34****D) 35****E) 48****Answer & Explanation****B) 40****Explanation:**

$$\text{Sum of ages of } A+B+C \text{ 3 yrs ago} = 27*3 = 81$$

$$\text{So after 3 yrs, i.e. at present their total} = 81 + 3*3 = 90$$

$$\text{Similarly sum of present age of B\&C} = 20*2 + 5*2 = 50$$

$$\text{So present age of A} = 90-50$$

- Average age of girls in a class is 16 years. If the average of the boys in class is also a [REDACTED] years.

with average age 15 years, how many girls were there in the class?

**A) 15****B) 40****C) 20****D) 25****E) 30****Answer & Explanation****C) 20****Explanation:**

Let x girls in the class, so

$$16x + 20*15 = 15.5(x+20)$$

• In a class, the average marks got by number of students in English is 52.25. 25% students placed in C category made the average of 31 marks, while 20% who were placed in A category made the average of 80 marks. Find the average marks of the remaining students?

**A) 50****B) 52.2****C) 51****D) 51.8****E) 48.8****Answer & Explanation****D) 51.8****Explanation:**

Let there are 100 students in the class, then in category A = 20 students, in C = 25 students, remaining = 55 students. Let x be the average of these 55 students.

$$\text{So } 20*80 + 25*31 + 55*x = 52.25*100$$

- The average of 5 numbers is 40. Average of first two and last two is 25 and 45 respectively. Find the middle number.

**A) 60****B) 45****C) 30****D) Cannot be determined****E) None of these****Answer & Explanation****A) 60****Explanation:**

$$5*40 - (2*25 + 2*45)$$

•

If a man spends 1000rs for the first five months, 2000rs for the next four months and 3000rs for the next 3 months and he saves 2000rs in the whole year then his average monthly salary will be ?

**a) 1000****b) 2000****c) 3000****d) 4000****Answer****Answer – b) 2000****Explanation :**

$$1000*5 + 2000*4 + 3000*3 + 2000 = 24000 \\ 24000/12 = 2000$$

- In a family of 6 members, the average age of the family at present is 25 while the age of the youngest member in the family is 5yrs, so what will be the average age of the family at the time of his birth ?**

- a) 21  
b) 22  
c) 23  
d) 24

**Answer**

Answer – d) 24

Explanation :

$$\text{sum of ages} = 25*6 = 150$$

At the time of birth, i.e 5 years back, so

$$(150-6*5)/5 = 24$$

- The average temperature for the first 5 month of the year is 40°C and the average temperature from second to sixth month is 42°C and the ratio b/w the temperature of 1<sup>st</sup> day and the 6<sup>th</sup> day is 3:4, find the temperature of the sixth day ?**

- a) 30  
b) 40  
c) 45  
d) 50

**Answer**

Answer – b) 40

Explanation :

$$1,2,3,4,5 = 200$$

$$2,3,4,5,6 = 210$$

$$4x - 3x = 10, \text{ so temp on sixth day} = 40$$

- The average age of A and B 10 years ago was 20. The average age of A, B and C today is 30, so what will be the age of C after 5 years.**

- a) 25  
b) 35  
c) 45  
d) 50

**Answer**

**Answer – b) 35**

Explanation :

$$A+B = 60.$$

$$A,B,C = 90$$

$$\text{so Age of C} = 30+5 = 35$$

- The average age of 5 children of a family is 10 years but if we include the age of father and mother then the average age becomes 22 years. It is given that father age is 6 years more than the mother so what will be the age of mother at present.**

- a) 47  
b) 48  
c) 49  
d) 50

**Answer**

Answer – c) 49

Explanation :

$$\text{sum of age of children} = 50$$

$$50 + M + F = 22*7 = 154.$$

$$M+F = 104 \text{ and } F = M+6. \text{ So, } M = 49$$

- The batting average of a batsman for 20 innings is 35 and the difference b/w the runs of best inning and worst inning is 50. If these two innings are not included the average becomes 32 for 18 innings. The best score of the batsman is.**

- a) 91  
b) 77  
c) 87  
d) 82

**Answer**

Answer – c) 87

Explanation :

$$35*20 = 700.$$

$$\text{Best}(B) - \text{Worst}(W) = 50$$

$$700 - B - H = 18*32 = 576. B + H = 124 \text{ and}$$

$$B - H = 50. \text{ So } B = 87$$

- The average age of a class of 20 students is 12 years. Out of which one student whose age is 10 year left the class and two new boys entered the class. The average of the class remains the same and**

**the difference between the ages of new boys is 4 year. What will be the age of younger one .**

- a) 8
- b) 9
- c) 10
- d) 11

**Answer**

**Answer – b) 9**

**Explanation :**

$$240 - 10 + a + b = 21 * 12$$

$$a + b = 22, a - b = 4. \text{ So, } b = 9$$

- The average marks secured by 15 students are 70 and later it was found that one entry is wrong and 65 is written instead of 45. Find out the corrected average.

- a) 67.66
- b) 68.66
- c) 69.66
- d) 70

**Answer**

**Answer – b) 68.66**

**Explanation :** (15\*70-65+45)/15

- The average salary of all the workers in factory is 7000. The average salary of 9 mechanic is 5000 and for the rest of the workers it 4000. Find the total number of workers in the factory.

- a) 10
- b) 11
- c) 12
- d) 13

**Answer**

**Answer – c) 12**

**Explanation :**

$$\text{Total workers } T, \text{ so } 7000*T = 9*5000 + (T-9)*4000.$$

$$T = 3 \text{ so } 3+9 = 12$$

- The average age of a couple at the time of marriage was 20 years. After 8 years of marriage they have a baby of 4 years old. Calculate the average age of the family when the baby was born.

- a) 16
- b) 15
- C) 17
- d) 18

**Answer**

**Answer – a) 16**

**Explanation :**

At the time of marriage  $H+W = 40$ . So when baby was born means after 4 years from their marriage  
 $so (40+4+4)/3 = 16$

- The average age of Husband and wife was 30yr, 4 yr ago. What will be their average age at present ?

- A)30
- B)34
- C)Cannot be determined
- D)None of these

**Answer**

**Answer – B)34**

**Explanation :**

$$\text{Avg of H and W age 4yr ago} = 30$$

$$\text{Present avg age of H and W} = 30+4 = 34$$

- The average weight of 20 students is 60kg. If the weight of the teacher is added, average is increased by 2kg. What was the teacher's weight ?

- A)100kg
- B)101kg
- C)102kg
- D)103kg

**Answer**

**Answer – C)102kg**

**Explanation :**

$$x/20 = 60; x = 1200$$

$$x/21 = 62; x = 1302$$

$$1302 - 1200 = 102$$

- The average mark in 2 subjects is 35 and in three other subject is 40. Then find the average mark in all the five matches ?

- A)37
- B)37.5

- C)36  
D)38

**Answer**

**Answer – D)38**

Explanation :

$$x/2 = 35; x = 70$$

$$x/3 = 40; x = 120$$

$$5 \text{ sub avg} = (70+120)/5 = 38$$

- The average height of 15 students is calculated as 75. But later it was found that the height of 1 student wrongly entered as 35 instead of 38 and another as 46 instead of 63. The correct average is

- A)71  
B)73  
C)75  
D)76

**Answer**

**Answer – D)76**

Explanation :

$$\{(15*75)-(35+46)+(38+63)\} / 15 = (1125 - 81 + 101) / 15$$

$$= 1145/15 = 76.33 = 76$$

- Among the three number the first is thrice the third number and second number is half of the first number. If the average of the three number is 65.8 then find the third number

- A)35.56  
B)35.85  
C)35.8  
D)35.65

**Answer**

**Answer – C)35.89**

Explanation :

Let third num = x, 1<sup>st</sup> numb = 3x, second no = 3x/2

$$[3x+(3x/2)+x] / 3 = 65.8$$

$$11x/2 = 197.4$$

$$X = (2 \times 197.4) / 11 = 35.89$$

- The average weight of 3 students P,Q and R is 84kg. Another student S joins the group and the average becomes 80kg. If another man T whose weight is 3kg more

than that of S, replaces P, then the average weight of Q,R,S and T becomes 79 kg then the weight of P is

- A)75  
B)82  
C)45  
D)98

**Answer**

**Answer – A)75**

Explanation :

$$P+Q+R = 84*3 = 252$$

$$P+Q+R+S = 4*80 = 320$$

$$S = 320 - 252 = 68$$

$$Q+R+S+T = 79*4 = 316$$

$$Q+R+2S+3 = 316$$

$$S = 68, Q+R = 177$$

$$P = 252 - 177 = 75$$

- The average of 5 consecutive number is 58. Find the first number ?

- A)55  
B)56  
C)57  
D)58

**Answer**

**Answer – B)56**

Explanation :

$$X+x+1+x+2+x+3+x+4 = 58*5 = 290$$

$$5x+10 = 290$$

$$X = 290 - 10/5 = 280/5 = 56$$

The average weight of 8 staff is increased by 3kg when one of them whose weight is 50kg is replaced by a new staff.

The weight of the new staff is

- A)50  
B)64  
C)76  
D)74

**Answer**

**Answer – D)74**

Explanation :  $50+(8*3) = 50 + 24 = 74$ .

- The average age of 15 army men is 60yrs. 5 new army men of average age 30yrs join them. Find the new average age

- A)51.5

- B)52.5  
C)55.2  
D)55.8

**Answer**

**Answer – B)52.5**

Explanation :

$$15 \text{ army men age} = 15*60 = 900$$

$$5 \text{ army men age} = 5*30 = 150$$

$$\text{New avg} = 900+150/20 = 52.5$$

- The average ages of 4 member, each having the age difference of 2yrs is 54 yrs.What is the sum of the youngest and oldest family member ?

- A) 102  
B) 105  
C) 107  
D) 108

**Answer**

**Answer – D) 108**

Explanation :

$$X+X+2+X+4+X+6 = 54*4 = 216$$

$$4X+12 = 216$$

$$X = 216-12/4 = 51$$

$$X+6 = 51+6 = 57$$

$$\text{Required} = 51+57 = 108$$

- The average of four consecutive ODD number is 28.Find the largest number.

- A)25  
B)31  
C)13  
D)27

**Answer**

**Answer – B) 31**

Explanation :

- Find the average of first 60 natural numbers

- A)30.5  
B)31  
C)31.5  
D)32

**Answer**

**Answer -A) 30.5**

Explanation :

$$\text{sum of 1st 60 natural number} = \frac{n(n+1)}{2}$$

$$= \frac{60 \times 61}{2} = 1830$$

$$\text{Average} = \frac{1830}{60} = 30.5$$

- Find the average of  $13+26+39+\dots+260$

- A)136.5  
B)136  
C)137  
D)135

**Answer**

**Answer – A)136.5**

Explanation :

$$\frac{13(1+2+3+\dots+20)}{20 \times 2} = \frac{13 \times 20 \times 21}{40} = \frac{5460}{40} = 136.5$$

- The average of five number is 42 ,if one number is excluded the average become 35.The excluded number is

- A)7  
B)40  
C)70  
D)20

**Answer**

**Answer – C)70**

Explanation :

$$\begin{aligned} \frac{x}{5} &= 42 \Rightarrow 42 \times 5 = 210 \\ \frac{x}{4} &= 35 \Rightarrow 35 \times 4 = 140 \\ 210 - 140 &= 70 \end{aligned}$$

- The average age of 30 students in a class is 20 years. The average age of 25 students is 15. What is the average age of remaining students

- A)42  
B)54  
C)34  
D)45

**Answer****Answer -D)45**

Explanation :

$$\begin{aligned} \text{Sum of age of 15 students} &= (40 \times 20) - (25 \times 15) = 600 - 375 = 225 \\ \text{Average} &= 225/5 = 45 \end{aligned}$$

- The average of nine number is x and the average of three of these is y, if the average of the remaining three is z, then

- A) $3x=y+z$   
B) $2x=y+z$   
C) $x=3y+3z$   
D)None of these

**Answer****Answer - A) $3x=y+z$** 

Explanation :

$$x = \frac{3y+3z}{9} \Rightarrow 3x = y + z$$

- If a,b,c,d,e,f,g are seven consecutive odd numbers, their average is

- A)(a+6)  
B)(abcdefg/7)  
C)(a+b+c+d+e+f+g)/7  
D)None of these

**Answer****Answer – A)(a+6)**

Explanation :

$$\begin{aligned} \text{average} &= \frac{a+(a+2)+(a+4)+(a+6)+(a+8)+(a+10)+(a+12)}{7} \\ &= \frac{7a+42}{7} = a+6 \end{aligned}$$

- The mean of 1,8,27,64,125.....1728

- A)650  
B)560  
C)600  
D)605

**Answer****Answer – A)650**

Explanation :

$$\begin{aligned} \text{Sum of cube numbers} &= \frac{n(n+1)(2n+1)}{6} = \frac{12 \times 13 \times 25}{6} \\ &= \frac{3900}{6} = 650 \end{aligned}$$

- 4 years ago, the average age of a family of 6 members was 20 years. A baby having been born, the average age of the family is same today. The present age of the baby

- A)1  
B)3  
C)2  
D)4

**Answer****Answer -D)4**

Explanation :

$$\begin{aligned} \text{Total age of 6 members (4 years ago)} &= 20 \times 6 = 120 \\ \text{Now total age of the family} &= 120 + (4 \times 6) = 120 + 24 \\ &= 144 \end{aligned}$$

$$\begin{aligned} \text{Total age of 7 members (now)} &= 20 \times 7 = 140 \\ \text{Age of the baby} &= 144 - 140 = 4 \end{aligned}$$

- Average of ten positive numbers is x. If each number is increased by 12% then x is increased by

- A)5%  
B)12%  
C)10%  
D)25%

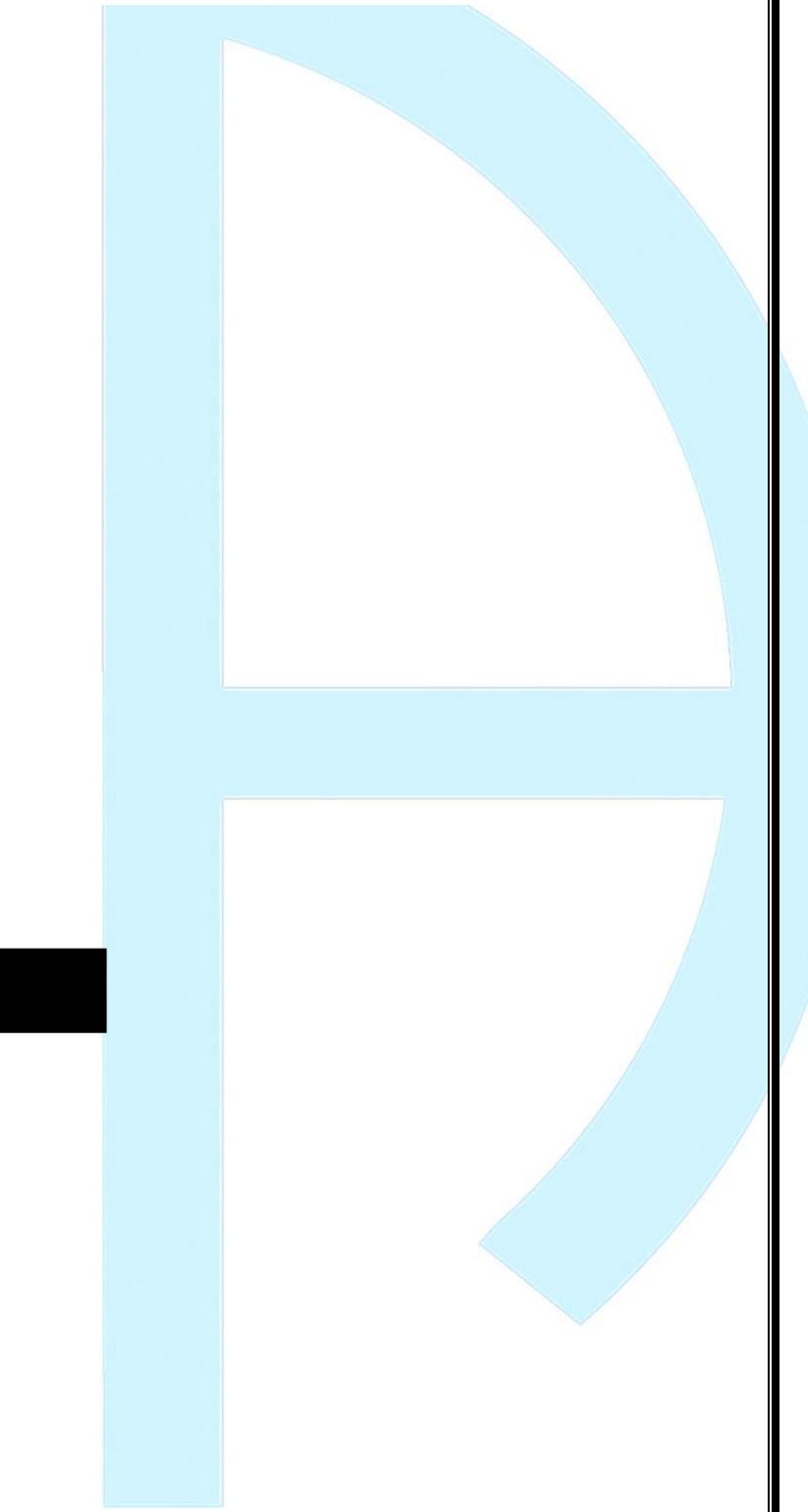
**Answer**

**Answer – B)12%**

Explanation :

$$\therefore \frac{\frac{120}{100}x_1 + \frac{120}{100}x_2 + \dots + \frac{120}{100}x_{10}}{10} = \frac{12}{10}x$$

Average is increased by **12%**



# 100+ PROBLEM ON AGES QUESTIONS WITH SOLUTION

[REDACTED] ADDA.COM

1. A person's present age is two-ninth of the age of his mother. After 10 years, he will be four-eleventh of the age of his mother. How old is the mother after 15 years?
- A) 48yrs  
B) 60yrs  
C) 55yrs  
D) 53yrs  
E) None

**View Answer**

**Option B**

**Solution:**

Present ratio P:M ==>2:9

After 10years P:M=4:11

Then

$$(2x+10)/(9x+10) = 4/11$$

$$22x+110=36x+40$$

$$X=5.$$

Then Mother's present age=9\*5=45yrs.

After 15 yrs Mother's age is=60yrs.

2. Ratio of the ages of A and B is 5 : x. A is 18 years younger to C. After nine years C will be 47 years old. If the difference between the ages of A and B is same as the age of C, what is the value of x?
- A) 13  
B) 12  
C) 14.5  
D) 13.25  
E) None

**View Answer**

**Option C**

**Solution:**

Given

$$A:B=5:x -1$$

$$A = C - 18 —2$$

$$C + 9 = 47 \Rightarrow C=47-9=38\text{yrs.}$$

$$A - B = C —3$$

$$\text{From 2 } A=38-18=20\text{yrs.}$$

$$\text{From 1 } 20/B=5/x \Rightarrow B=4x$$

$$\text{From 3 } 4x-20=38$$

$$X=14.5.$$

3. 16 years ago, my Uncle was 8 times older than me. After 8 years from today, my uncle will be thrice as old as I will be at that time. Eight years ago, what was the ratio of my age and my uncle's age?
- A) 11:53

- B) 13:45
- C) 8:29
- D) 5:32
- E) None

[View Answer](#)

**Option A**

**Solution:**

Let 16 yrs ago the age of mine was=x

$$(x+24)/(8x+24)=1/3$$

$$X=48/5=9.6$$

My present age is  $9.6+16=25.6$

Present age of my Uncle = $8*9.6+16=92.8$

$$\text{Required ratio}=(25.6-8)/(92.8-8)=17.6/84.8=11:53.$$

4. The sum of present ages of A and B is 11 times the difference of their ages. 5 years hence, their total ages will be 13 times the difference of their ages. What is the present age of elder one?
- A) 35yrs
  - B) 20yrs
  - C) 25yrs
  - D) 30yrs
  - E) None

[View Answer](#)

**Option D**

**Solution:**

$$A+B=11(A-B)$$

$$A:B=6:5$$

According to 2nd condition

$$6x+5x+10=13(6x-5x)=5$$

$$A's \text{ age } =6*5=30.$$

5. The average age of a husband-wife and their son was 42 years. The son got married and exactly after 1 year a child was born to them. When the child became 5 years old, the average age of the family became 36 years. What was the age of bride at the time of marriage?
- A) 30yrs
  - B) 27yrs
  - C) 25yrs
  - D) 22yrs
  - E) None

[View Answer](#)

**Option C****Solution:**

$$F+M+S=42*3=126$$

The age of family after 6 years =  $36*5=180$

The age of bride after 6 years =  $180-(126+18+5)$

$$=180-149==>31\text{ yrs}$$

Age of bride at the time of marriage =  $31-6=25\text{ yrs.}$

6. A says, "If you reverse my own age, the figures represent my Brother's age. He is, of course, senior to me and the difference between our ages is one-eleventh of their sum." Then A's brother's age is ?

- A) 45
- B) 54
- C) 25
- D) 52
- E) None

[View Answer](#)

**Option B****Solution:**

$$\text{From option } 54-45=1/11(45+54)$$

$$9=9$$

Condition satisfied.

7. L is as much younger than M as he is older than N. If the sum of the ages of M and N is 60 years, what is definitely the difference between M and L's age?

- A) 3yrs
- B) 2yrs
- C) 5yrs
- D) Can't be determined
- E) None

[View Answer](#)

**Option D****Solution:**

$$M - L = L - N$$

$$(M + N) = 2L$$

$$\text{Given } (M + N) = 60$$

$$\text{then } 2L=60==>L=30$$

But can't able to find M value

Therefore, cannot be determined.

8. If three times of the son's age in years is included to the mother's age, the total is 75 and if two times of the mother's age is included to the son's age, the total is 80. So the son's age is?

- A) 15yrs

- B) 18yrs
- C) 14yrs
- D) 22yrs
- E) None

[View Answer](#)**Option C****Solution:**

Let daughter's age = A and mother's age = B

Given:  $3A+B = 75$  and  $A+2B = 80$

Solving A, we will get  $A = 14$ .

9. The ages of P, Q and R together are 57 years. Sis thrice as old as P and R is 12 years older than P. Then, the difference between ages Q and R is?

- A) 11yrs
- B) 6yrs
- C) 8yrs
- D) 4yrs
- E) None

[View Answer](#)**Option B****Solution:**

Let P's age = X

R 12 yrs older than P so R's age =  $x+12$

Q is thrice as old as P so Q's age =  $3x$

$$x + (x+12) + 3x = 57$$

$$\Rightarrow 5x = 45$$

$$x = 9$$

P's age = 9

Q's age =  $3x = 27$

R's age =  $x+12 = 21$

$$Q-R=27-21=6\text{yrs.}$$

10. If 10 years are subtracted from the present age of Sharmi and the remainder is divided by 6, then the present age of his grandson Epsi is obtained. If Epsi is 2 years younger to Nove whose age is 7 years, then what is Sharmi's present age?

- A) 40yrs
- B) 35yrs
- C) 52yrs
- D) 55yrs
- E) None

[View Answer](#)

**Option A****Solution:**

Epsi age = $7-2=5$  yrs  
Let Sharmi age be  $x$  years.  
Then  $(x-10)/6=5$   
 $X=40$

1. Father is aged three times more than his son Arun. After 8 years, he would be two and a half times of Arun's age. After further 8 years, how many times would he be of Arun's age?  
A)  $2\frac{1}{2}$   
B) 2  
C) 3  
D)  $3\frac{1}{2}$   
E) None

[View Answer](#)

**Option B****Solution:**

Let Arun's present age be  $x$  years. Then, father's present age  $=(x + 3x)$  years  $= 4x$  years.  
Then  $(4x+8)=5/2(x+8)$   
 $8x+16=5x+40$   
 $3x=24$   
 $X=8$ .  
Required ratio,  $(4x+16)/(x+16) = 48/24=2$ .

2. In a family, a couple has a son and daughter. The age of the father is four times that of his daughter and the age of the son is half of his mother. The wife is ten years younger to her husband and the brother is six years older than his sister. What is the age of the mother?  
A) 34  
B) 40  
C) 38  
D) 42  
E) None

[View Answer](#)

**Option A****Solution:**

Let the daughter's age be  $x$  years.  
Then, father's age  $= 4x$ .  
Mother's age  $= 4x - 10$ ; Son's age  $= x + 6$ .

So,  $x + 6 = (4x - 10)/2 \Rightarrow x = 11$ .

Therefore Mother's age =  $4x - 10 = 44 - 10 = 34$  years.

3. Thomas's present age is three times his son's present age and half of his father's present age. The average of the present ages of all of them is  $33\frac{1}{3}$  years. What is the difference between the Thomas's son's present age and Thomas's father's present age?
- A) 45
  - B) 55
  - C) 50
  - D) 40
  - E) None

[View Answer](#)

**Option C**

**Solution:**

Present age of Thomas's son =  $x$  years

Thomas's present age =  $3x$  years

Thomas's father's present age =  $3x \times 2 = 6x$

$$x + 3x + 6x = 33\frac{1}{3} \times 3$$

$$10x = 100/3 \times 3 \Rightarrow x = 10$$

Then diff between Thomas son's and father's age is

$$60 - 10 = 50 \text{ yrs}$$

4. My brother is 3 years elder to me. My father was 28 years of age when my sister was born while my mother was 26 years of age when I was born. If my sister was 4 years of age when my brother was born, then what was the age of my father when my brother was born?
- A) 30
  - B) 35
  - C) 40
  - D) 32
  - E) None

[View Answer](#)

**Option D**

**Solution:**

Father's age was 28 years when my sister was born.

My sister's age was 4 years when my brother was born.

Therefore, father's age was  $28 + 4 = 32$  years when my brother was born.

5. P is as much younger than Q and he is older than R. If the sum of the ages of Q and R is 60 years, what is definitely the difference between Q and P's age?
- A) 4
  - B) 5
  - C) 2

- D) Can't be determined  
E) None

[View Answer](#)

**Option D**

**Solution:**

Can't be determined

6. If 10 years are subtracted from the present age of Shyam and the remainder is divided by 7, then the present age of his grandson Santhosh is obtained. If Santhosh is 2 years younger to Madan whose age is 7 years, then what is Shyam 's present age ?  
A) 45  
B) 48  
C) 36  
D) 35  
E) None

[View Answer](#)

**Option A**

**Solution:**

Santhosh's age =  $(7 - 2)$  years = 5 years.

Let Shyam's age be x years.

Then  $(x-10)/7 = 5$

$X=45$ yrs.

7. A's age Is 120% of what it was 15 years ago, But 75 % of what it will be after 15 years.  
What is his present age?  
A) 50  
B) 45  
C) 65  
D) 56  
E) None

[View Answer](#)

**Option C**

**Solution:**

$120\% \text{ of } (x-15) = 75\% \text{ of } (x+15)$

$$\frac{6}{5} * (x-15) = \frac{3}{4} * (x+15)$$

$$8x * (x-15) = 5x * (x+15)$$

$$3x = 195$$

$$x = 65.$$

8. The ratio of the ages of M and N is 6 : 5. The total of their ages is 7.7 decades. The proportion of their ages after 1.5 decades will be [1 Decade = 10 years]

- A) 43:55
- B) 50:57
- C) 44:47
- D) 57:50
- E) None

[View Answer](#)

**Option D**

**Solution:**

$$(6+5)11x = 77$$

$$x=7$$

M's age = 42 years

and N's age = 35 years

$$\text{Proportion of their ages after 15 is } = (42 + 15) : (35 + 15) \\ = 57 : 50$$

9. The average age of a group of 10 students is 20 years. When 5 more students join the group, the average age increase by 2 year. The average age of the new students is?

- A) 24
- B) 26
- C) 25
- D) 28
- E) None

[View Answer](#)

**Option B**

**Solution:**

$$\text{Total age of 10 students} = (10 \times 20) 200$$

$$\text{Total age of 15 students} = (15 \times 22) 330$$

$$\text{Total age of 5 new students} = 330 - 200 = 130 \text{ years}$$

$$\text{Then average age of 5 new students} = 130/5 = 26 \text{ years}$$

10. The average age of a couple was 26 years at the time of marriage. After 11 years of marriage, the average age of the family with 3 children become 19 years. The average age of the children is

- A) 8
- B) 6
- C) 10
- D) 7
- E) None

[View Answer](#)

**Option D****Solution:**

The average age of a couple = 26 years.

Total age of couples =  $26 \times 2 = 52$  years

Total age of couple after 11 years =  $(52 + 2 * 11) = 74$  years

If average age of 3 children after 11 years is  $3x$  years.

$$(74+3x)/5=19$$

$$X=7$$

The average age of children is 7 years.

1. If 10:13 is the ratio of present age of A and B respectively and 8:15 is the ratio between A's age 10 years ago and B's age 10 years hence. Then what will be the ratio of A's age 10 years hence and B's age 10 years ago ?  
A) 12:11  
B) 12:15  
C) 8:11  
D) 6:8  
E) None

[View Answer](#)

**Option A****Solution:**

Present age of A and B is  $10x$  and  $13x$ .

Then  $10x-10/13x+10=8/15$

$$46x=230 \Rightarrow x=5$$

So Required ratio is  $60:55=12:11$

2. Shyam's present age is  $3/10$  of his father's present age. Shyam's brother is 4 years older than him. The ratio between the present age of Shyam's father and Shyam's brother is 5:2. What is Shyam's present age?  
A) 6 years  
B) 12 years  
C) 15 years  
D) 16 years  
E) None

[View Answer](#)

**Option B****Solution:**

S: S's F == 3:10 (bcos S is  $3/10$  of father's age)

S's F: S's B = 5:2

Then S: S's F : S's B = 3:10

$$5:2 \Rightarrow 15:50:20 = 3:10:4$$

Diff S and S's B is 4 then ratio diff (4-3)1....4  
3 ? == 12years

3. In a family, a couple has a son and daughter. The age of the father is five times that of his daughter and the age of the son is half of his mother. The wife is ten years younger to her husband and the brother is ten years older than his sister. What is the age of the mother?
- A) 40 years
  - B) 45 years
  - C) 50 years
  - D) 65 years
  - E) None

[View Answer](#)

**Option A**

**Solution:**

Let the mother's age be  $x$ .

Father's age  $x+10$

Son's age  $x/2$

Daughter's age  $x/2-10$ .

Now, Father's age is % times of Daughter's age

$$x+10=5(x/2-10) \Rightarrow x=40 \text{ yrs.}$$

4. If the ages of A and C are added to twice the age of B, the total becomes 59. If the ages of B and C are added to thrice the age of A, the total becomes 68 and if the age of A is added to thrice the age of B and thrice the age of C, the total becomes 108. What is the age of A?
- A) 18 years
  - B) 15 years
  - C) 12 years
  - D) 20 years
  - E) None

[View Answer](#)

**Option C**

**Solution:**

$$A+C+2B=59-1$$

$$B+C+3A=68-2$$

$$A+3B+3C=108-3$$

Multiply eqn 2 by 3 and subtract 3

$$(3B+3C+9A=204) - (A+3B+3C=108)$$

$$9A-A=204-108=96$$

$$A=12 \text{ yrs.}$$

5. The respective ratio between the present age of A and B is  $5 : x$ . A is 2 years younger than C. C's age after 8 years will be 30 years. The difference between A's and B's age is same as the present age of C. What is the value of  $x$ ?
- A) 8
  - B) 10
  - C) 12
  - D) 6
  - E) None

[View Answer](#)

**Option D**

**Solution:**

C's age after 8 years = 30 years  
C's present age =  $30 - 8 = 22$  years  
A's present age =  $22 - 2 = 20$  years  
B's present age =  $20 + 22 = 42$  years  
Ratio between A and B =  $20 : 42 \Rightarrow 5:6$

6. Meena married 10 years ago. Today her age is  $\frac{7}{5}$  times her age at the time of her marriage. Her daughter age is  $\frac{1}{5}$  of her age. What is the ratio of Meena's age to her daughter age after 5 years?
- A) 10:3
  - B) 10:13
  - C) 8:11
  - D) 5:9
  - E) None

[View Answer](#)

**Option A**

**Solution:**

Let's Meena's age be  $x$   
 $X = \frac{7}{5} * (x-10) \Rightarrow x = 35$ .  
And her daughter's age  $35/5 = 7$ .  
After 5 yrs M:D =  $40:12 \Rightarrow 10:3$

7. Father is aged three times more than his son kavin. After 8 years, he would be two and a half times of kavin's age. After further 8 years, how many times would he be of kavin's age?
- A) 4
  - B) 5
  - C) 2
  - D) 3
  - E) None

[View Answer](#)**Option C****Solution:**

Assume that kavin's present age = $x$ .

Then, father's present age = $3x+x=4x$

After 8 years, father's age= $2 \frac{1}{2}$  times of kavin's age.

$$(4x+8)=2 \frac{1}{2}(x+8) \Rightarrow 3x=24$$

$$X=8.$$

Then x kavin's age=8, her father's age  $4*8=32$ .

After 8+8 =16yrs. their age's are 24 and 48.

It is 2 times.

8. Mr. X has three sons namely P, Q and R. P is the eldest son of Mr. X while R is the youngest one. The present ages of all three of them are square numbers. The sum of their ages after 5 years is 44. What is the age of P after three years?
- A) 15 years
  - B) 13 years
  - C) 19 years
  - D) 17 years
  - E) None

[View Answer](#)**Option C****Solution:**

Square numbers – x, y, z

$$(x + 5) + (y + 5) + (z + 5) = 44$$

$$x + y + z = 44 - 15 = 29$$

Possible values of x, y, z = 4, 9, 16 [Out of 1, 4, 9, 16, 25] P's present age = 16; after three years = 19

9. Three years ago the average age of Ramesh's family having 5 members was 17 years. Ramesh becomes father but the average age of his family is same today. What is the present age of baby?
- A) 1 year
  - B) 2 years
  - C) 3 years
  - D) 4 years
  - E) None

[View Answer](#)**Option B****Solution:**

The age of 5 members 3 years ago= $17 \times 5 = 85$  years

Total age of 5 members at present =  $85 + (5 \times 3) = 100$  years  
 Total age of 6 members at present =  $17 \times 6 = 102$  years...  
 (as average is same at present so we took 17)  
 Hence, age of baby =  $102 - 100 = 2$  years

10. The ratio between the present ages of A and B is 6:7. If B is 4 years old than A, what will be the ratio of the ages of A and after 4 years.

- A) 7:8
- B) 7:9
- C) 8:9
- D) 6:5
- E) None

[View Answer](#)

**Option A**

**Solution:**

Let A age and B age is  $6x$  years and  $7x$  years.

$$\text{Then } 7x - 6x = 4 \Leftrightarrow x = 4$$

So required ratio will be  $(6x+4):(7x+4) \Rightarrow 28:32 \Rightarrow 7:8$

1. Four years ago the ratio of ages of A & B was 3 : 5 and five year hence the ratio will become 6:8. Find the present age of A?

- A) 15yrs
- B) 13yrs
- C) 16yrs
- D) 17yrs
- E) 18yrs

[View Answer](#)

**Option A**

**Solution:**

.	A.....B
4yr ago	3.....5
Present	+3      +3
5yr after	6.....8

So total 9 years

$$\text{So } 3 = 9$$

$$1 = 3$$

$$\text{A's age 4yrs ago} = 9$$

$$\text{A's present age} = 9+4 = 13$$

2. Six year ago the ratio of ages of A & B was 1:3 and after six year the ratio becomes 2:3. Find the sum of present ages of A & B.

- A) 24  
B) 26  
C) 28  
D) 30

[View Answer](#)

**Option C**

**Solution:**

.	A.....B
6yr ago	1.....3
Present	+1      +0
6yr after	2.....3

First of all we have to make same difference. So their difference will be multiplied with each other.

.	A.....B
.	1.....3
.	+3      +3
.	4.....6

Now difference is same...  $3 = 12$

So  $1 = 4$

Present ages of A and B are  $4+6= 10$ ,  $12+6= 18$

Sum =  $10+18 = 28$

3. The present ratio of ages of A & B is 11:12 and the ratio of ages of A's 2yr back and B's 6yr after is 2:3. Find age of A 6yr after?
- A) 28yr  
B) 30yr  
C) 26yr  
D) 36yr

[View Answer](#)

**Option A**

**Solution:**

$$A/B = 11/12 \dots\dots\dots(1)$$

$$(A-2)/(B+6) = 2/3 \dots\dots\dots(2)$$

By solving above equation we will get  $A = 22$

So age of A 6yr after =  $22+6 = 28$ yr

4. The average of 20 students class is 21. If the age of teacher is included then average increase by 2yr. Find age of teacher?
- A) 60yr  
B) 63yr  
C) 66yr  
D) 61yr

[View Answer](#)**Option B****Solution:**

If the age of teacher is 21 then average remains unchanged but due to increase by 2yr, it means teacher gave 2yr to everyone(  $20+1 = 21$  )

$$\begin{aligned}21 + (21 \times 2) \\21 + 42 = 63 \text{ yr}\end{aligned}$$

5. Sita's present age is  $1\frac{2}{5}$  times of her age at the time of marriage. She married 10yr ago. Now she has a son whose age is 1 more than  $\frac{1}{5}$ th of her age at the time of marriage. Find the age of son?
- A) 3yr  
B) 4yr  
C) 5yr  
D) 6yr

[View Answer](#)**Option D****Solution:**

Sita's present age	Sita's marriage age
7	5
+2	
2 = 10	
1 = 5	
5 = 25 yr	

Now Sita's son age is 1 more than  $\frac{1}{5}$ th of her marriage time age.  
 $1 + 25/5 = 6$ yr

6. The ratio of father and son's age is 7:4. The product of their ages is 2800. The ratio of their ages after 2yr will be ?
- A) 7:12  
B) 12:7  
C) 3:5  
D) 5:3

[View Answer](#)**Option B****Solution:**

Sol : let their age is  $7x$  and  $4x$

$$\text{Product} = 28x^2 = 2800$$

$$x^2 = 100$$

$$x = 10$$

$$\text{Their ages} = 70 : 40$$

$$2\text{yrs after} = 72 : 42$$

$$12 : 7$$

7. The sum of the ages of father and son is 45 yrs. Five years ago the product of their ages was 4 times the father's age at that time the present ages of father & son are ?

A) 39,6  
B) 35,10  
C) 36,9  
D) 40,10

[View Answer](#)

**Option C**

**Solution:**

$$\begin{aligned}F + S &= 45 \\5 \text{yr ago } F + S &= 35 \\A.T.Q &= F * S = 4 * F \\S &= 4 \text{yr} \\F &= 31 \text{yr} \\ \text{Present age} &= 31+5 = 36 \text{yr} \\4+5 &= 9 \text{ yr}\end{aligned}$$

8. The ratio between the ages of father & son at present is 7:3. 4yr hence the ratio between son & his mother will be 1:2. Find the ratio of the present ages of father & mother?

A) 3:4  
B) 5:4  
C) 4:3  
D) Can't determined  
E) None of these

[View Answer](#)

**Option D**

**Solution:**

$$\begin{aligned}\text{Let age of father & son} &\dots 7x, 3x \\4 \text{yr hence, son's age} &= 3x+4 \\ \text{Ratio of ages of son & mother} &\dots 3x+4 : M = 1:2 \\M &= 6x+8 \\F + M &= 7x : 6x+4 \\ \text{We can't find value of } x. \text{ so ans is D.}\end{aligned}$$

9. Three years ago the father was 7times as old as his son. Three year hence the father's age would be 4times that of his son. Find present ages of father and son?

A) 25yr  
B) 35yr  
C) 45yr  
D) 55yr

[View Answer](#)

**Option C****Solution:**

$$\begin{array}{ll} \cdot & F : S \\ 3\text{yr ago} & 7 : 1 \dots \dots \dots (1) \\ \text{Present} & -3 +0 \end{array}$$

$$\begin{array}{ll} 3\text{yrs after} & 4 : 1 \dots \dots \dots (2) \end{array}$$

We have to Make difference same.

Equation (1) \* 3 equation (2) \* 6

$$\begin{array}{ll} \cdot & F \dots \dots \dots S \\ \cdot & 21 \dots \dots \dots 3 \\ \cdot & 24 \dots \dots \dots 6 \end{array}$$

Now difference  $24-21=3$ ,  $6-3=3$  is same.

$$3 = 6$$

$$1 = 2$$

$$21 = 42$$

$$\text{Present age } = 42+3 = 45 \text{ yr}$$

10. Mikesh was thrice as old as ajay 20 yrs back. How old is ajay today, if mikesh will be 50 yrs old 10 year hence?
- A) 20yr  
B) 30yr  
C) 40yr  
D) 50yr

[View Answer](#)

**Option B****Solution:**

Mikesh's present age  $= 50-10 = 40$  yr

20 yrs back from now mikesh age  $= 20$  yr

Ajay is half  $= 10$  yr

Now ajay age  $= 10+20 = 30$  yr.

1. Ratio of present age of A and B is 7 : 9 and ratio of ages of A 5 years back and age of B 5 years later is 3:5. Find the present age of B.
- A) 35 years  
B) 45 years  
C) 30 years  
D) 50 years  
E) 40 years

[View Answer](#)

**Option B****Solution:**

$$A/B=7/9$$

$(A-5)/(B+5)=3/5$   
solve both and get A=35 and B=45

2. 5 years ago the ratio of ages of A and B are 5:7 and 10 years hence from now ratio will become 4:5. Find the average of present age of A and B.
- A) 30 years  
B) 40 years  
C) 35 years  
D) 45 years  
E) None of these

[View Answer](#)

### Option C

**Solution:**

$$\begin{array}{ccccccc} & \text{A} & & \text{B} & & & \\ \text{5 years ago} & \text{---} & 5 & \text{---} & 7 & & \\ \text{10 years hence} & \text{---} & 4 & \text{---} & 5 & & \\ \text{Difference} = & \text{---} & (-1) & \text{---} & (-2) & & \end{array}$$

to make these two difference equal multiply the second equation with  $(7-5)=2$   
So we get

$$\begin{array}{ccccccc} & \text{A} & & \text{B} & & & \\ \text{5 years ago} & \text{---} & 5 & \text{---} & 7 & & \\ \text{10 years hence} & \text{---} & 8 & \text{---} & 10 & & \\ \text{Difference} = & \text{---} & (+3) & \text{---} & (+3) & & \\ 3=15 \text{ years (5 ago + 10 hence)} & & & & & & \\ 1=5 \text{ years} & & & & & & \\ \Rightarrow 5 = 25 \text{ years (5 years ago of A)} & & & & & & \\ \Rightarrow 7=35 \text{ years (5 years ago of B)} & & & & & & \\ \text{Hence A}=25+5=30 & & & & & & \\ \text{B}=35+5=40 \text{ years} & & & & & & \\ \text{Avg}=70/2=35 & & & & & & \end{array}$$

3. The present age of a son is 40% of his father age. And the age of his mother is 220% of his age. The average age of three members is 38. Find the present age of mother.
- A) 50 years  
B) 22 years  
C) 10 years  
D) 44 years  
E) None of these

[View Answer](#)

### Option D

**Solution:**

Son= 40% of father.

F:S=5:2

Mother=220% of son=11/5  
M:S=11:5  
make F:M:S =25:22:10  
 $\text{avg}=(25+22+10)/3=19$   
19=38  
1=2  
 $\Rightarrow 22=44$

4. Rama got married 8 years ago. Her present age is  $1 \frac{1}{3}$  times of her age at the time of marriage. She has a son who is one eighth of her present age. Then find the age of her son.
- A) 4 years
  - B) 3 years
  - C) 2 years
  - D) 5 years
  - E) None of these

[View Answer](#)

#### Option A

##### Solution:

$1 \frac{1}{3}=4/3$   
Ratio of present age of Rama and her age at time of marriage=4:3 —— difference =1  
1=8 years  
4=32  
age of son= $32/8=4$  years

5. A says to B "I am thrice as old as you are when I was as old as you were". If age of B is 20 years find the age of A
- A) 60 years
  - B) 30 years
  - C) 45 years
  - D) 36 years
  - E) None of these

[View Answer](#)

#### Option B

##### Solution:

A              B

3x              y

y              x

$3x-y = y-x$  (difference is same)

$4x=2y$

$x/y=1/2$

$2=20$

$1=10$

$$3x=30$$

6. The father's age is four times as much as the sum of the age of his three children but 6 years hence his age will be thrice as the sum of their age. The present age of father is?
- A) 60 years
  - B) 54 years
  - C) 42 years
  - D) 48 years
  - E) None of these

[View Answer](#)

**Option D**

**Solution:**

Let sum of children age =  $x$ ; hence father =  $4x$

$$(4x+6)/x+6 = 3/1$$

$$x=12;$$

$$\text{father}=48$$

7. In a class of 20 students the average of all the students is 18 years. If the age of their teacher is added then the average becomes 19 years. Find the age of teacher after 5 years.
- A) 44 years
  - B) 39 years
  - C) 43 years
  - D) 38 years
  - E) None of these

[View Answer](#)

**Option A**

**Solution:**

Let age of teacher =  $x$

$$(\text{total age})/\text{total people} = 19$$

$$360+x/21=19$$

$$x=39$$

hence age after 5 years = 44

8. In a family there are 5 brothers in a gap of 2 years. If their average age is 22 find the sum of eldest and youngest brother.
- A) 42 years
  - B) 40 years
  - C) 38 years
  - D) 44 years
  - E) None of these

[View Answer](#)**Option D****Solution:**

44

difference is same, hence 22 i.e is average is the age of middle son i.e

18,20,22,24,26 : age of 5 son

$$18+26=44$$

9. Four years ago the ratio of ages of A and B is 3:5. After four years from now the ratio will be 5:7. Then find the ratio of their present age.

- A) 5:7
- B) 5:3
- C) 2:3
- D) 7:5
- E) None of these

[View Answer](#)**Option C****Solution:**

.	A	B
4 years ago	= 3	5
4 years after	= 5	7
Difference	= 2	2

$$2=8 \text{ (4 ago + 4 hence)}$$

$$1=4$$

$$\text{present age A} = 3*4 + 4 = 16$$

$$B=5*4 + 4 = 24$$

$$16/24 = 2:3$$

10. The average age of a couple at the time of their marriage was 22. Two years after the marriage their child was born. Now he is 4 years old. Find the average age of their present age.

- A) 24 years
- B) 22 years
- C) 18 years
- D) 20 years
- E) None of these

[View Answer](#)**Option D****Solution:**Sum of couples age at time of marriage =  $2*22=44$ when son was born, total age =  $44+2+2=48$

After 4 years total age=48+4+4+4=60  
avg=60/3=20

1. The present age of Sumit is  $\frac{1}{8}$ th of his father. After 4 years, the father's age will be twice the age of Raman. If Raman celebrated his 6<sup>th</sup> birthday eight years ago, what is Sumit's present age?

  - A) 4
  - B) 6
  - C) 5
  - D) 8
  - E) None of these

### **View Answer**

## **Option A**

**Solution:**

Present ratio Sumit : Father is 1 : 8.....(1)

4 years after, Father : Raman is 2 : 1.....(2)

Raman's 6<sup>th</sup> birthday was 8 years ago, so after 4 years he will be 18 years old.

Put in equation (2). Raman = 18. Father = 36

So present age of father = 32

So of Sumit is  $32/8 = 4$  years.

2. Sita's present age is five times of her daughter's age and  $\frac{1}{3}$ rd of her father's age. If the average age of all the three is 28 years, then find the difference between Sita's daughter's age and her father's age.

  - A) 50
  - B) 40
  - C) 56
  - D) 55
  - E) 62

### **View Answer**

### **Option C**

### Solution:

Sita : Daughter = 5 : 1

Sita : Father = 3 : 1

Total age of 3 =  $1 + 5 + 15 = 21$

$$\text{So average} = 21/3 = 7$$

30 avera  
7 28

7.....20

.....4

Sita's daughter = 4  
So her father's = 60

So her father's = 60

Difference = 56 years

3. Sheetal's age at the time of her marriage was  $\frac{4}{5}$ th of her present age. If she married 6 years ago and now she has a son who is  $\frac{1}{10}$ th of her present age, then find the age of her son 5 years hence.

- A) 3
- B) 8
- C) 9
- D) 10
- E) 12

[View Answer](#)

**Option D**

**Solution:**

$$\frac{4}{5} * 6 = 24/30$$

24 => at the time of marriage

30 years => now

$$\text{Son} = \frac{1}{10} \text{ of present age} = \frac{1}{10} * 30 = 3 \text{ years}$$

$$5 \text{ years hence} = 3+5 = 8 \text{ years}$$

4. Ram is 6 years elder than his brother and 5 years younger than her sister Sheena. When Sheena was born, her father's age was 24 and when Ram's brother was born his mother's age was 29. Find the difference between ages of Ram's father and his mother.

- A) 10
- B) 8
- C) 6
- D) Cannot be determined
- E) None of these

[View Answer](#)

**Option C**

**Solution:**

$$\text{Bother}=x$$

$$\text{Ram}=x+6$$

$$\text{Sheena}=x+11$$

$$\text{Father}=x+11+24=x+35$$

$$\text{Mother}=x+29$$

$$\text{Difference}=x+35-(x+29)=6 \text{ years}$$

5. When a couple was married, their average age was 22 years. When their first child was born, the average age of all the three became 16 years. When their second child was born, the average of all 4 became 15 years. Find the average age of couple at the time when their second child was born.

- A) 20
- B) 28
- C) 30

- D) 32  
E) 25

[View Answer](#)

**Option B**

**Solution:**

At the time of marriage total age of couple=44

when 1<sup>st</sup> child is born total age of three= $16 \times 3 = 48$

Difference= $48 - 44 = 4$  years (Child is of 0 years hence this is the sum of age increase of couple)

When second child is born sum of age= $4 \times 15 = 60$  years

=> increase of 12 years after first child, means age of husband, wife and first child increased by 4 years each. SO increase in husband and wife total age = 8 years total increase = $4 + 8 = 12$

total age= $44 + 12 = 56$ ; average= $56 / 2 = 28$  years

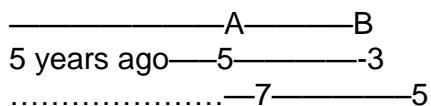
6. Five years ago, the ratio of ages of A and B was 5 : 3 and five years hence from now, the ratio will become 7 : 5. Find the average of their present ages.

- A) 15  
B) 18  
C) 21  
D) 25  
E) 24

[View Answer](#)

**Option D**

**Solution:**



In both case increase of 2 years  $7 - 5 = 2$  and  $5 - 3 = 2$

hence this increase of 2 years is for 10 years

=> $1 = 5$

hence  $A = 5 \times 5 + 5 = 30$

$B = 3 \times 5 + 5 = 20$

Average=25

7. Four years ago, the ratio of ages of Vishal and Devansh was 3 : 5. Four years from now, the respective ratio will become 2 : 3. What is the ratio of age of Vishal 4 years ago and Devansh's present age?

- A) 4 : 5  
B) 1 : 2  
C) 6 : 11  
D) 3 : 4

E) 9 : 13

**View Answer****Option C****Solution:**

$$\begin{array}{ccccccc} & V & & D & & & \\ \hline 4 \text{ years ago} & 3 & & 5 & \text{---(eq 1)} \\ 4 \text{ years hence} & 2 & & 3 & \text{---(eq 2)} \end{array}$$

Difference of V = 3 - 2 = 1; Difference of D = 5 - 3 = 2

to make this difference equal multiply eq 2, by 2 we get

$$\begin{array}{ccccccc} & V & & D & & & \\ \hline 4 \text{ years ago} & 3 & & 5 & \text{---(eq 1)} \\ 4 \text{ years hence} & 4 & & 6 & \text{---(eq 2)} \end{array}$$

difference = 1 in both case

This is for 8 years =&gt; 1 = 8 years

V = 3 \* 8 = 24 (4 years ago)

D = 5 \* 8 = 40 (4 years ago)

ratio = 24/40 = 6:11

8. The average age of 10 men increased by 1 when two men of age 25 and 27 years are replaced by 2 other men. Find the average age of new men.

- A) 31
- B) 30
- C) 26
- D) 33
- E) 28

**View Answer****Option A****Solution:**

Sum of age of leaving person = 52

total increase of age = 10 \* 1 = 10 years

increased total age due to addition of two men = 52 + 10 = 62; Avg = 31

9. The average age of a group of 20 men is 22 years. If two men whose age are 24 and 31 years respectively join the group, the average age of new group increase or decrease by

- A) No increment, no decrement
- B) increase by 0.5 year
- C) decrease by 0.5 year
- D) increase by 1 year
- E) decrease by 1 year

[View Answer](#)**Option B****Solution:**

When 2 new people join if the sum of their age is 44 then the average will not change, but the sum of age of new people is 55 i.e increase of 11 hence avg increases by  $11/22=0.5$  years.

10. The ratio of present age of Tiya and Piya is 3 : 5 and the ratio of ages of Tiya 5 years ago and Piya 5 years hence is 1 : 3. Find the present age of Piya.

- A) 10
- B) 25
- C) 15
- D) 30
- E) 31

[View Answer](#)**Option B****Solution:**

$$T/P = 3/5 \quad \text{--- (i)}$$

$$T-5/P+5 = 1/3 \quad \text{--- (ii)}$$

Solve and get

$$T=15 \text{ years}$$

$$P= 25 \text{ years}$$

1. Four times the difference in ages of C and A is one more than the age of B. Percentage of A's age to C's age is 75%. If ratio of B's age 5 years hence to C's age 1 year ago is 4 : 3. Find the average of ages A and C.

- A) 20
- B) 19
- C) 12
- D) 14
- E) 8

[View Answer](#)**Option D****Solution:**

$$4(C-A) = B + 1$$

$$A/C * 100 = 75$$

$$(B+5)/(C-1) = 4/3$$

Solve

$$A = 12, C = 16$$

2. 10 years ago daughter's age was two-fifth of her mother's age that time. While 10 years hence her age will be three-fifth of her mother's age then. Find the difference in the ages of the two.

- A) 24
- B) 19
- C) 26
- D) 38
- E) 16

[View Answer](#)

**Option A**

**Solution:**

$$(x-10) = \frac{2}{5} (y-10)$$

$$(x+10) = \frac{3}{5} (y+10)$$

Solve,  $x = 26$  and  $y = 50$

3. B is as more younger than C as he is elder than A. Ratio of ages of A to C is 5 : 9. If B's age after 10 years will be 24, find the average of all of their present ages.

- A) 15
- B) 16
- C) 14
- D) 22
- E) 19

[View Answer](#)

**Option C**

**Solution:**

$$\text{B's present age} = 24 - 10 = 14$$

$$\text{So C' age} = 14 + x$$

$$\text{And A' age} = 14 - x$$

$$(14+x)/(14-x) = 9/5$$

Solve,  $x = 4$

$$\text{So average age} = (10+14+18)/3 = 14 \text{ years}$$

4. Kaira is 4 years younger to his brother. Her father was 30 years old when her sister was born while her mother was 30 years old when she was born. If her sister was 4 years old when their brother was born, find the age of her father when her mother was born.

- A) 11
- B) 12
- C) 4
- D) 10
- E) 8

[View Answer](#)**Option E****Solution:**

When Kaira was born:

Mother was 30.

She is 4 years younger to her brother, so brother was 4 years old.

Sister was 4 years old when brother was born, so sister is 4 years elder to brother, so sister was 8 years old.

Father was 30 when sister was born, so father is 30 years elder to sister, so father was  $30+8 = 38$  years old.

Now when Kaira was born, mother was 30 and father was 38

So difference in their ages is 8 years. So when mother was born, father was 8.

5. 6 years ago, three times the age of B was 2 more than the age if A that time. 6 years hence, twice age of B will be equal to A's age that time. Find the total of their ages.

- A) 48
- B) 66
- C) 56
- D) 65
- E) 60

[View Answer](#)**Option B****Solution:**

$$3 * (B-6) = 2 + (A-6)$$

$$2 * (B+6) = A + 6$$

Solve, A = 46, B = 20

6. If 6 years are subtracted from the present age of Babita and the remainder is divided by 18, then the present age of her granddaughter Geeta is obtained. If Geeta is 2 years younger to Sita whose age is 5 years, then what is Babita's present age?

- A) 77
- B) 65
- C) 84
- D) 43
- E) 79

[View Answer](#)**Option A****Solution:**

$$\text{Geeta's age} = (5-2) = 3 \text{ years}$$

Let age of Babita = x years

$$\text{So } (x-6)/18 = 3$$

Solve,  $x = 60$

7. A's age is twice C' age. Ratio of age of B 2 years hence to age of C 2 years ago is 5 : 2. C is 14 years younger than D. Difference in ages of D and A is 4 years. Find the average of their ages.

- A) 36
- B) 25
- C) 27
- D) 13
- E) 18

[View Answer](#)

**Option E**

**Solution:**

$$\begin{aligned}A &= 2C \\(B+2)/(C-2) &= 5/2 \\C &= D - 14 \\D - A &= 4 \\ \text{Solve, } A &= 20, B = 18, C = 10, D = 24\end{aligned}$$

8. When the couple was married the average of their ages was 25 years. When their first child was born, the average age of family became 18 years. When their second child was born, the average age of the family became 15 years. Find the average age of the couple now.

- A) 31
- B) 27
- C) 28
- D) 29
- E) 30

[View Answer](#)

**Option D**

**Solution:**

Sum of ages of couple =  $25*2 = 50$   
When 1st child born, total age of 3 =  $18*3 = 54$  years  
At this time the child's age was 0, so age of father and mother would have increased by same. So increased by 2 years each. So  $50 + 2 + 2 = 54$   
Now when 2nd child born, total age of 4 =  $15*4 = 60$   
So this time second child's age = 0 and age of father, mother and first child would have increased by same. So increased by 2 each such that  $54 + 2+2+2 = 60$   
So now this time (after 4 years from age 50), total age of couple is  $50+4+4 = 58$   
So average = 29 years

9. Ratio of age of A to B is 3 : 2 and that of A to C is 1 : 2. Difference in ages of B and C is 24 years. Find the average of their present ages.

- A) 24
- B) 22
- C) 14
- D) 26
- E) 31

[View Answer](#)

**Option B**

**Solution:**

$$B/A = 2/3 \text{ and } A/C = 1/2$$

$$\text{So } B : A : C = 2*1 : 3*1 : 3*2 = 2 : 3 : 6$$

$$\text{So } 6x - 2x = 24, 4x = 24, x = 6$$

$$\text{So total of their present ages} = (2+3+6)*6. \text{ So average} = (2+3+6)*6 / 3 = 22 \text{ years}$$

10. Ratio of ages of A 5 years hence to B's age 3 years ago is 5 : 3. Also ratio of ages of A 4 years ago to B's age 2 years hence is 4 : 5. Find the age of the elder.

- A) 15
- B) 18
- C) 21
- D) 20
- E) 24

[View Answer](#)

**Option D**

**Solution:**

$$(A+5)/(B-3) = 5/3$$

$$(A-4)/(B+2) = 4/5$$

$$\text{Solve } A = 20, B = 18$$

1. The ratio of ages of Sneha to Bhavna is 6 : 13. Also ratio between Kritika's age two years after and Bhavna's age 4 years after will be 2 : 3. If the average age of Sneha and Kritika is 15 years, what will be Kritika's age three years hence?

- A) 23
- B) 19
- C) 12
- D) 15
- E) 8

[View Answer](#)

**Option D**

**Solution:**

$$S/B = 6/13$$

$$(K+2)/(B+4) = 2/3$$

$$S + K = 2 * 15 = 30$$

Solve the equations,  $K = 12$ , So  $K + 3 = 15$

2. Difference between ages of Raman and Preet is 16 years. If Raman's age ten years hence will be two times the age of Preet, find Raman's age.
- A) 26
  - B) 19
  - C) 42
  - D) 38
  - E) 46

[View Answer](#)

**Option C**

**Solution:**

$$R - P = 16$$

$$(R + 10) = 2P$$

Solve,  $R = 42$

3. Three years ago, Pihu was thrice old as Ravi that time. How old is Pihu today if ratio of age of Pihu six years hence to Ravi's age four years ago is 9 : 2?
- A) 25
  - B) 30
  - C) 33
  - D) 22
  - E) 28

[View Answer](#)

**Option B**

**Solution:**

$$(P - 3) = 3 * (R - 3)$$

$$(P + 6)/(R - 4) = 9/2$$

Solve both equations,  $P = 30$

4. The average age of Yogita, Kanika and Prachi is 14 years. The ratio of Yogita's age one year ago to Kanika's age one years hence to Prachi's age three years hence is 5 : 6 : 4. Find ratio of Yogita's age two years hence to Prachi's age.
- A) 8 : 5
  - B) 5 : 3
  - C) 1 : 4
  - D) 2 : 1
  - E) 4 : 7

[View Answer](#)

**Option D****Solution:**

$$Y + K + P = 42$$

$$(Y - 1) : (K + 1) : (P + 3) = 5 : 6 : 4$$

$$\text{So } (5x + 1) + (6x - 1) + (4x - 3) = 42$$

Solve,  $x = 3$

So Yogita's age 1 ago hence =  $5x = 15$ , so present age = 16

Prachi's age 3 years hence =  $4x = 12$ , so present age = 9

$$\text{So } (Y+2)/P = 18/9 = 2/1$$

5. Sneha's mother's age is five years more than twice the age of Sneha. When Sneha was born, her brother Rahul was four years old and her father two years older than her mother. If the average age of her mother and father is 46 years. Find the ratio of age of Rahul to that of Sneha.

A) 3 : 7

B) 7 : 4

C) 6 : 5

D) 8 : 11

E) 3 : 10

[View Answer](#)

**Option C****Solution:**

Let age of Sneha =  $x$ , So age of Mother =  $2x+5$ , Rahul =  $x+4$ , Father =  $2x+7$

$$(2x+5 + 2x+7) = 2*46$$

So  $x = 20$

$$\text{So } (x+4)/x = 24/20 = 6/5$$

6. Ratio of ages of Reena and Prerna is 2 : 3 and the ratio of ages of Tiya and Reena is 3 : 1. If the ratio of age of Prerna four years hence to age of Tiya three years hence is 5 : 9, what is the total of the ages of all three?

A) 77

B) 65

C) 84

D) 43

E) 79

[View Answer](#)

**Option A****Solution:**

$$P/R = 3/2 \text{ and } R/T = 1/3$$

$$\text{So } P : R : T =$$

$$3*1 : 2*1 : 2*3 = 3 : 2 : 6$$

$$\text{Now } (3x+4)/(6x+3) = 5/9$$

So  $x = 7$

$P = 3x = 21$ ,  $R = 2x = 14$ ,  $T = 6x = 42$

So  $P + R + T = 77$

7. Richa's age is thrice of Tisha's age while Megha's age is 3 less than that of Richa's. The ratio of ages of Tisha's three years hence to Megha's four years ago is 3 : 5. What is the square root of the total age of Tisha and Richa?

- A) 36
- B) 25
- C) 6
- D) 13
- E) 18

[View Answer](#)

**Option C**

**Solution:**

$Tisha = x$ ,  $Richa = 3x$ ,  $Megha = 3x - 3$

$(x+3)/(3x-3-4) = 3/5$

Solve,  $x = 9$

So total age of Tisha + Richa =  $x + 3x = 4x = 36$ , So square root =  $\sqrt{36} = 6$

8. The ratio of age of Shaisha one year ago to Piya is 3 : 5. The sum of ages of Piya and Misha after four years will be 50. If difference between the ages of Shaisha and Misha is 7 years, find Misha's age.

- A) 21
- B) 19
- C) 18
- D) 10
- E) 12

[View Answer](#)

**Option E**

**Solution:**

$(S - 1)/P = 3/5$

$P + M + 4 + 4 = 50$

So  $P + M = 42$

$S - M = 7$

Solve equations,  $M = 12$

9. Kashish's age is two-fifth the age of her mother. Nine years hence her age will be half of her mother's age that time. What is her mother's present age?

- A) 22
- B) 45
- C) 54

- D) 36  
E) 41

[View Answer](#)

**Option B**

**Solution:**

$$K = 2M/5$$

$$(K+9) = (M+9)/2$$

Solve,  $M = 45$

10. Ratio between Rahim's age four years hence and Meher's age three years ago is 6 : 5. If the ratio between Rahim's age two years ago and Meher's age four years hence is 6 : 11, find the ratio of Rahim' age to Meher's age.

- A) 5 : 9  
B) 9 : 4  
C) 2 : 11  
D) 7 : 9  
E) 4 : 9

[View Answer](#)

**Option D**

**Solution:**

$$(R+4)/(M-3) = 6/5$$

$$(R-2)/(M+4) = 12/22 = 6/11$$

Solve  $R = 14$ ,  $M = 18$

# 120+ PERCENTAGE QUESTIONS WITH SOLUTIONS

ADDA.COM

**Veena bought a watch costing Rs. 1404 including sales tax at 8%. She asked the shopkeeper to reduce the price of the watch so that she can save the amount equal to the tax. The reduction of the price of the watch is?**

- A. Rs.108
- B. Rs.104
- C. Rs.112
- D. Rs.120
- E. None of these

**Answer & Explanation**

**B. Rs.104**

**Explanation:**

$$1.08x = 1404$$

$$x = 1300$$

The reduction of the price of the watch = 104

**A Sales Executive gets a commission on total sales at 8%. If the sale is exceeded Rs.10,000 he gets an additional commission as a bonus of 4% on the excess of sales over Rs.10,000. If he gets the total commission of Rs.950, then the bonus he received is?**

- A. 40
- B. 50
- C. 36
- D. 48
- E. None of these

**Answer & Explanation**

**B. 50**

**Explanation:**

$$\text{Commission up to } 10000 = 10000 * 8/100 = 800$$

$$\text{Ratio} = 2x:x ; \text{Commission} = 2x, \text{Bonus} = x ;$$

$$\text{Bonus} = 950 - 800 * 1/3 = 150 * 1/3 = 50$$

**In a College there are 1800 students. Last day except 4% of the boys all the students were present in the college. Today except 5% of the girls all the students are present in the college, but in both the days number of students present in the college, were same. The number of girls in the college is?**

- A. 1000
- B. 400
- C. 800
- D. 600
- E. 1200

**Answer & Explanation**

**C. 800**

**Explanation:**

From Options;

$$\text{let Number of girls} = 800$$

$$\text{Number of boys} = 1000$$

$$96\% \text{ of } 1000 + 800 = 95\% \text{ of } 800 +$$

1000 [satisfies the condition; Check the condition with other options also]

**In a library 60% of the books are in Hindi, 60% of the remaining books are in English rest of the books are in Malayalam. If there are 4800 books in English, then the total number of books in Malayalam are?**

- A. 3400
- B. 3500
- C. 3100
- D. 3200
- E. None of these

**Answer & Explanation**

**D. 3200**

**Explanation:**

Let there are X books in the library.

$$\text{Hindi books} = 60\% \text{ of } X = 60X/100 = 0.6X$$

$$\text{Remaining Books} = X - 0.6X = 0.4X$$

$$\text{English books} = 40\% \text{ of remaining books} = 60\% \text{ of } 0.4X = 0.24X.$$

$$\text{Malayalam Books} = X - 0.6X - 0.24X = 0.16X$$

Given,

$$0.24X = 4800$$

$$X = 4800/0.24 = 20000$$

$$\text{Malayalam Books} = 0.16X = 0.16*20000 = 3200.$$

**80% of a small number is 4 less than 40% of a larger number. The larger number is 125 greater than the smaller one. The sum of these two numbers is**

- A. 325
- B. 345
- C. 355
- D. 365
- E. None of these

**Answer & Explanation**

**C. 355**

**Explanation:**

smaller number = x; larger number = y

$$0.8x + 4 = 0.4y$$

$$4y - 8x = 40$$

$$y - x = 125$$

$$x = 115; y = 240$$

$$x + y = 355$$

In a private company 60% of the employees are men and 48% of the employees are Engineer and 66.6% of Engineers are men. The percentage of women who are not engineers is?

- A. 60%
- B. 50%
- C. 55%
- D. 65%
- E. 45%

#### Answer & Explanation

A. 60%

**Explanation:**

$$\text{Men} = 600x$$

$$\text{Women} = 400x$$

$$\text{Total engineers} = 480x$$

$$\text{Male engineers} = 480x * 0.66 = 320x$$

$$\text{Women who are Engineers} = 160x$$

$$\text{Women who are not Engineers} = 400x - 160x = 240x$$

$$\text{Required percentage} = 240/400 * 100 = 60\%$$

Initially, Suresh has Rs.200 in his paytm wallet then he increased it by 20%. Once again he increased his amount by 25%. The final value of money in his wallet will be how much % greater than the initial amount?

- A. 40%
- B. 50%
- C. 80%
- D. 60%
- E. None of these

#### Answer & Explanation

B. 50%

**Explanation:**

$$200 + 20\% \text{ of } 200 = 240$$

$$240 + 25\% \text{ of } 240 = 300$$

$$\text{Required percentage} = 300 - 200/200 * 100 = 50\%$$

Mr.Ramesh gives 10% of some amount to his wife and 10% of the remaining to hospital expenses and again 10% of the remaining amount to charity. Then he has only Rs.7290 with him. What is the initial sum of money with that person?

- A. Rs.8000
- B. Rs.9000

C. Rs.10000

D. Rs.20000

E. Rs.17200

#### Answer & Explanation

C. Rs.10000

$$\text{Remaining amount} = x * 0.9 * 0.9 * 0.9$$

$$0.729x = 7290$$

$$x = 10000$$

Initially, a shopkeeper had “x” pens. A customer bought 10% of pens from “x” then another customer bought 20% of the remaining pens after that one more customer purchased 25% of the remaining pens. Finally, shopkeeper is left with 270 pens in his shop. How many pens were there initially in his shop?

- A. 200
- B. 800
- C. 400
- D. 600
- E. 500

#### Answer & Explanation

E. 500

**Explanation:**

$$x * 0.9 * 0.8 * 0.75 = 270$$

$$x = 270 * 10000 / 9 * 8 * 75$$

$$x = 500$$

The cost of packaging of the oranges is 20% the cost of fresh oranges themselves. The cost of oranges increased by 30% but the cost of packaging decreased by 50%, then the percentage change of the cost of packed oranges, if the cost of packed oranges is equal to the sum of the cost of fresh oranges and cost of packaging

- A. 14.5%
- B. 16.66%
- C. 14.33%
- D. 13.66%
- E. None of these

#### Answer & Explanation

B. 16.66%

**Explanation:**

Let initial Cost of fresh, oranges = 100.  
packaging cost = 20. Initial total cost = 100 + 20 = 120

After increasing in cost of fresh mangoes 30%,  
Cost of fresh mangoes = 130

And cost of packing go down by 50 % so,

Cost of packing = 10.  
 Total cost =  $130 + 10 = 140$ .  
 Increased cost =  $140 - 120 = 20$ .  
 % increased =  $(20 * 100) / 120 = 16.66\%$ .



**Cost Price of two laptops is same. One of the laptops is sold at a profit of 15% and the Selling Price of another one laptop is Rs. 3400 more than the first one. The net profit is 20%. What is the Cost Price of Each laptop?**

- A. 36000
- B. 40000
- C. 48000
- D. 34000
- E. None of these

#### Answer & Explanation

**D. 34000**

**Explanation:**

$$(2x * 1.15) + 3400 = 2x * 1.20$$

$$2.4x - 2.3x = 3400$$

$$x = 34000$$

**In an office there are 40% female employees. 50% of the male employees are UG graduates. The total 52% of employees are UG graduates out of 1800 employees. What is the number of female employees who are UG graduates?**

- A. 362
- B. 412
- C. 396
- D. 428
- E. Non

#### Answer & Explanation

**C. 396**

**Explanation:**

Total employees = 1800  
 female employees = 40%  
 male employees = 60%  
 50% of male employees = UG graduates = 30%  
 Female employees who are UG graduates = 22%  
 22% of 1800 = 396

**Ravi got 70% in English and 56% in Biology and the maximum marks of both papers is 100. What percent does he score in Maths, if he scores 60% marks in all the three subjects?. Maximum Marks of Maths paper is 200.**

- A. 30%

- B. 40%
- C. 45%
- D. 25%
- E. 57%

#### Answer & Explanation

**E. 57%**

**Explanation:**

$$70 + 56 + x = 60\% \text{ of all three subjects}$$

$$70 + 56 + x = 60\% \text{ of } 400$$

$$x = 240 - 126 = 114$$

$$\% = 114/200 * 100 = 57\%$$

**Ankita is 25 years old. If Rahul's age is 25% greater than that of Ankita then how much percent Ankita's age is less than Rahul's age?**

- A. 40%
- B. 35%
- C. 10%
- D. 20%
- E. None of these

#### Answer & Explanation

**D. 20%**

**Explanation:**

$$\text{Percentage decrease} = 25/125 * 100 = 20\%$$

**Mr.Ravi's salary was reduced by 25% for three months. But after the three months, his salary was increased to the original salary. What is the percentage increase in salary of Mr.Ravi?**

- A. 33.33%
- B. 42.85%
- C. 28.56%
- D. 16.66%
- E. None of these

#### Answer & Explanation

**A. 33.33%**

**Explanation:**

$$\text{Percentage increase} = 25/75 * 100 = 33.33\%$$

**In an election only two candidates A and B contested 30% of the voters did not vote and 1600 votes were declared as invalid. The winner, A got 4800 votes more than his opponent thus he secured 51% votes of the total voters on the voter list. Percentage votes of the loser candidate, B out of the total voters on the voter list is:**

- A. 5.6%
- B. 3%

- C. 6.2%  
D. 5%  
E. 4.6%

**Answer & Explanation****B. 3%****Explanation:**

Total voters on the voter list =  $x$   
 $0.51x + 0.51x - 4800 = 0.70x - 1600$   
 $1.02x - 4800 = 0.70x - 1600$   
 $x = 10000$   
 Votes of the loser candidate =  $5100 - 4800 = 300$   
 Percentage votes of the loser candidate =  $300/10000 * 100 = 3\%$

In a school there are 2000 students. On January 2nd, all the students were present in the school except 4% of the boys and on January 3rd, all the students are present in the school except 28/3% of the girls, but in both the days number of students present in the school, were same. The number of girls in the school is?

- A. 400  
B. 1200  
C. 800  
D. 600  
E. None of these

**Answer & Explanation****D. 600****Explanation:**

From Options;  
 let Number of girls = 600  
 Number of boys = 1400  
 $96\% \text{ of } 1400 + 600 = [600 - 28/3 \% \text{ of } 600] + 1400 = 1944$  [satisfies the condition; Check the condition with other options also]

A school has raised 75% of the amount it needs for a new building by receiving an average donation of Rs. 1200 from the parents of the students. The people already solicited represents the parents of 60% of the students. If the School is to raise exactly the amount needed for the new building, what should be the average donation from the remaining students to be solicited?

- A. Rs.800  
B. Rs.900  
C. Rs.850

- D. Rs.600  
E. Rs.720

**Answer & Explanation****D. Rs.600 Explanation:**

Let the number of parents be  $x$  who has been asked for the donations.

People already solicited = 60% of  $x = 0.6x$   
 Remaining people = 40% of  $x = 0.4x$   
 Amount collected from the parents solicited =  $1200 * 0.6x = 720x$   
 $720x = 75\%$ ; Remaining amount = 25% =  $240x$   
 Thus, Average donations from remaining parents =  $240x / 0.4x = 600$

The monthly income of Shyama and Kamal together is Rs.28000. The income of Shyama and Kamal is increased by 25% and 12.5% respectively. The new income of Kamal becomes 120% of the new salary of Shyama. What is the new income of Shyama?

- A. Rs.12000  
B. Rs.18000  
C. Rs.14000  
D. Rs.16000  
E. Rs.15000

**Answer & Explanation****E. Rs.15000****Explanation:**

The monthly income of Shyama and Kamal =>  
 $S + K = 28000 \text{ ---(1)}$   
 Shyama's income =  $x$ ; Kamal's income =  $28000 - x$ .  
 $K = 120/100 * S \text{ ---(2)}$   
 $S \text{'s new income} = (28000 - x) * 112.5/100$   
 $K \text{'s new income} = x * 125/100$   
 $(28000 - x) * 112.5/100 = x * 125/100$   
 $x = 12000$   
 New Income of Shyama = 125% of 12000 = 15000

500 kg of ore contained a certain amount of iron. After the first blast furnace process, 200 kg of slag containing 12.5% of iron was removed. The percentage of iron in the remaining ore was found to be 20% more than the percentage in the original ore. How many kg of iron were there in the original 500 kg ore?

- A. 54.2  
B. 58.5  
C. 46.3

- D. 42.4  
E. 89.2

#### Answer & Explanation

**E. 89.2.**

**Explanation:**

Initially 'x' kg of iron in 500 kg ore.  
Iron in the 200 kg of removed = $200 \times 12.5/100 = 25$  kg.  
The percentage of iron in the remaining ore was found to be 20% more than the percentage in the original ore  
 $\text{So } (x-25)/300 = (120/100) \times x/500$   
 $\Rightarrow x - 25 = 18x/25$   
 $\Rightarrow 7x = 625$   
 $\Rightarrow x = 89.2$



**In a class of 60 students , 40% of the students passed in Reasoning, 5% of the students failed in Quants and Reasoning, and 20% of the students passed in both the subjects. Find the number of student passed only in Quants?**

- 1.17  
2.33  
3.23  
4.37  
5. None of these

#### Answer & Explanation

**Answer – 2.33**

**Explanation :**

Total students=60  
Failed in both=5% of 60=3  
Passed in both=20% of 60=12  
Passed in reasoning=50% of 60=24  
Those passed only in reasoning =24-12=12 students.  
Passed only in Quants=60-(12+12+3)=33

**The maximum marks per paper in 3 subjects in Mathematics , Physics and Chemistry are set in the ratio 1 : 2 : 3 respectively. Giri obtained 40% in Mathematics, 60% in Physics and 35% in Chemistry papers. What is overall percentage marks did he get overall?**

- 1.44%  
2.32%  
3.50%  
4.60%  
5. None of these

#### Answer & Explanation

**Answer – 1.44%**

**Explanation :**

$40*1/100 : 60*2/100 : 35*3/100 = 0.4:1.2:1.05$   
Overall % = $100 * [0.4+1.2+1.05]/1+2+3 = 265/6 = 44.16 = 44\%$

**In an examination, 50% of the students passed in Science and 75% passed in Social, while 20% students failed in both the subjects. If 270 students passed in both subjects, find the total number of students who appeared in the exam?**

- 1.400  
2.540  
3.600  
4.750  
5. None of these

#### Answer & Explanation

**Answer – 3.600** Explanation :

passed in science = 50%

passed in social = 75%

20% students failed in both the subjects and 80% passed in at least one subject  
No of students passed in both subjects =  
 $50+75-x=80$   $x=45\%$  45% of x = 270  $x = 270*100/45 = 600$

Total number of students =600

**Fresh fruits contain 75% while dry fruits contain 20% water. If the weight of dry fruits is 300 kg, what was its total weight when it was fresh?**

- 900kg  
2.850kg  
3.920kg  
4.960kg  
5. None of these

#### Answer & Explanation

**Answer – 4.960kg**

**Explanation :**

Quantity of water in 300 kg dry fruits, =  $(20/100) * 300 = 60$  kg  
Quantity of fruit alone =  $300-60 = 240$  kg  
25 kg fruit piece in 100 kg fresh fruits  
For 240 =  $(100 * 240)/25 = 960$  kg.

**In a college election 35% voted for Person A, whereas 42% voted for Person B. The remaining people were not vote to any person. If the difference between those who**

**vote for Person B in the election and those who are uncertain was 570, how many people are participated in the college election?**

- 1.1500
- 2.2000
- 3.2100
- 4.1700
- 5.None of these

**Answer & Explanation**

Answer – 2.3000

**Explanation :**

Let the number of individuals involved in election be x.

Percentage of those who were not vote =  $100 - (35+42) = 23\%$

The difference between those who voted

$42\% \text{ of } x - 23\% \text{ of } x = 570$

$19\% \text{ of } x = 570$

$x = 570 * 100 / 19 = 3000$

**In a factory there are three types of bulbs L1, L2 and L3 which produces 20%, 15% and 32% of the total products respectively. L1, L2 and L3 produces 3%, 7% and 2% defective products, respectively. Find the percentage of non-defective products ?**

- 1.46%
- 2.30%
- 3.53%
- 4.64%
- 5.None of these

**Answer & Explanation**

Answer – 4.64%

**Explanation :**

$(20 * 0.97) + (15 * 0.93) + (32 * 0.98) =$

$19.4 + 13.95 + 31.36$

$= 64.71$

**In a class of 500 students ,65% are boys. 20% of the girls and 40% of the boys failed the exam.Find the of students in the school passed the exam?**

- 1.335
- 2.270
- 3.400
- 4.362
- 5.None of these

**Answer & Explanation**

Answer – 1.335

**Explanation :**

Total students are  $100\% = 500$

Boys =  $65\% \text{ of } 500 = 325$ ,  
 Girls =  $35\% = 35 * 500 / 100 = 175$   
 Girls failed in the exam =  $175 * 80 / 100 = 140$   
 Boys failed in the exam =  $40 / 100 \times 325 = 130$   
 Total =  $140 + 130 = 335$

**The population of village increases at the rate of 6% per annum. There is an additional increase of 2% in the population due to rural development .Therefore the percentage increase in the population after 2 years will be**

- 1.15.46%
- 2.16.64%
- 3.14.46%
- 4.12.56%
- 5.None of these

**Answer & Explanation**

Answer – 2.16.64%

**Explanation :**

Total increase =  $6+2 = 8\%$

% increase =  $8+8+(8 * 8 / 100) = 16+0.64 = 16.64\%$

**The total salary of Guagn and Harish in an organization is Rs 30000. If the salary of Gugan increase by 5% and salary of Harish increase by 7%, then their total salary would increase to Rs 31800. Find the salary of Harish ?**

- 1.Rs.10,000
- 2.Rs.15,000
- 3.Rs.18,000
- 4.Rs.12,000
- 5.None of these

**Answer & Explanation**

Answer – 2.Rs.15,000

**Explanation :**

$7\% \text{ increases } 30000 = \text{Rs } 2100 = 30000 + 2100 = \text{Rs } 32,100$

But the actual increase in salary = 31800

Difference =  $32100 - 31800 = 300$

$2\% = 300$

Gugan's salary =  $300 / 2 \times 100 = 15000$

Harish's salary =  $30000 - 15000 = \text{Rs } 15000$

**In an examination 70% candidates passed in prelims and 55% candidates passed in Mains. If 62% candidates passed in both these subjects, then what per cent of candidates failed in both the exams?**

- 1.37%  
2.26%  
3.43%  
4.15%  
5. None of these

**Answer & Explanation****Answer – 1.37%****Explanation :**

Students passed in Prelims = 70%  
 Students passed in Mains = 55%  
 Students passed in both = 62%  
 No of students passed in at least one subject =  $(70+55)-62 = 63\%$ .  
 students failed in both subjects =  $100-63 = 37\%$ .

In a class, 60% of the students are boys and in an examination, 80% of the girls scored more than 40 marks (Maximum Marks: 150). If 60% of the total students scored more than 40 marks in the same exam, what is the fraction of the boys who scored 40 marks or less.

- A. 8/15  
B. 7/15  
C. 4/5  
D. 1/5

**Answer & Explanation****A.8/15****Explanation:**

Assume Total no of students = 100  
 60% of the students are boys. so  
 Boys=60, Girls=40  
 No. of girls who scored more than 40 marks = 80% of girls = 80% of 40 = 32.  
 No. of students who scored more than 40 marks = 60% of Total Students = 60  
 Therefore No. of boys who scored more than 40 marks =  $60-32=28$   
 No. of boys who scored less = Total boys – Boys(scored more) =  $60-28=32$   
 Fraction = (scored less)/Total boys =  $32/60 = 8/15$

In an election 10% of the voters on the voters' list did not cast votes and 60 voters cast their ballot papers blank. There were only two candidates. The winner was supported by 47% of all voters in the list and he got 308 votes more than his rival. The number of voters on the list was:

- A. 3600

- B. 6200  
C. 4575  
D. 6028

**Answer & Explanation****B. 6200****Explanation:**

Let total number of voters =  $x$   
 People who voted for the winner are =  $0.47x$   
 People who voted for the loser are =  $0.47x-308$   
 People who cast blanks are = 60  
 and people who did not vote are =  $0.1x$   
 solve the following equation  
 $0.47x+0.47x-308+60+0.1x=x \Rightarrow x=6200$

Deepak was to get a 50% hike in his pay but the computer operator wrongly typed the figure as 80% and printed the new pay slip. He received this revised salary for three months before the organization realized the mistake. What percentage of his correct new salary will get in the fourth month, if the excess paid to him in the previous three months is to be deducted from his fourth month?

- A. 30%  
B. 40%  
C. 45%  
D. 25%

**Answer & Explanation****B. 40%****Explanation:**

Assume Deepak's salary = 10000  
 original hike(50%) amount = 5000 ; Revised salary = 15000  
 Wrongly typed(80%) hike amount = 8000  
 Diff = 3000; For three months = 9000  
 Fourth Month Salary =  $15000-9000=6000$   
 $15000*x/100 = 6000 \Rightarrow x=40\%$

The prices of two articles are in the ratio 3 : 4. If the price of the first article be increased by 10% and that of the second by Rs. 4, the original ratio remains the same. The original price of the second article is

- A. Rs.40  
B. Rs.35  
C. Rs.10  
D. Rs.30

**Answer & Explanation****A. Rs.40****Explanation:**

Let the price of two articles are  $3X$  and  $4X$ .

After increment the ratio will be:

$$110\% \text{ of } 3X/(4X+4) = 3/4$$

$$x=10$$

Thus the CP of second article =  $4X = 4*10 = \text{Rs. } 40$ .

**The ratio of the number of boys and girls in a school is 3:2. If 20% of the boys and 25% of the girls are scholarship holders, the percentage of the students who are not scholarship holders is**

- A. 30%
- B. 60%
- C. 75%
- D. 78%

#### Answer & Explanation

**D. 78%**

#### Explanation:

Consider Total no of students = 100

Ratio is 3:2 i.e Boys=60 and Girls=40

20% of boys who get scholarship =

$$60*20/100=12\%$$

25% of girls who get scholarship =  $40*25/100$

$$=10\%$$

Therefore % of students who do not get

scholarship =  $100-(12+10)=78\%$

**Sohan spends 23% of an amount of money on an insurance policy, 33% on food, 19% on children's education and 16% on recreation. He deposits the remaining amount of Rs. 504 in bank.**

spend

- A. Rs.3178
- B. Rs.3126
- C. Rs.3136
- D. Rs.3048

#### Answer & Explanation

**C. Rs.3136**

#### Explanation:

Total amount =  $x$

Savings(%)

$$[100 - (23 + 33 + 19 + 16)]\% = 9\%$$

$$9\% \text{ of } x = 504$$

$$\Rightarrow x = 504 * 100/9 = 5600$$

Amount spent on food and insurance policy together = 56% of 5600 = Rs.3136

**Deepika went to a fruit shop with a certain amount of money. She retains 15% of her**

**money for auto fare. She can buy either 40 apples or 70 oranges with that remaining amount. If she buys 35 oranges, how many more apples she can buy?**

- A. 35
- B. 40
- C. 15
- D. 20

#### Answer & Explanation

**D. 20**

#### Explanation:

Assume Total amount = Rs.100

Auto fare = 15% of Total amount i.e Rs.15

Now the amount is Rs.85

Price of 70 oranges = Rs.85

Price of 35 oranges =  $(85/70)*35 = \text{Rs. } 42.50$

Remaining amount to buy apples is =Rs. 42.50

Price of 40 apples = Rs.85

Price of X apples = Rs.42.50

$$X=(85/42.5)*40 = 20 \text{ Apples}$$

**The price of a car is Rs. 4,50,000. It was insured to 80% of its price. The car was damaged completely in an accident and the insurance company paid 90% of the insurance. What was the difference between the price of the car and the amount received?**

- A. Rs.1,76,375
- B. Rs.3,24,000
- C. Rs.1,82,150
- D. Rs.1,26,000

#### Answer & Explanation

**D. Rs.1,26,000**

**Explanation:**  $4,50,000 * (80/100) * (90/100) = 324000$

$$450000 - 126000 = \text{Rs. } 1,26,000$$

**The tank-full petrol in Arun's motor-cycle last for 10 days. If he starts using 25% more every day, how many days will the tank-full petrol last?**

- A.4
- B.6
- C.8
- D.10

#### Answer & Explanation

**C.8**

#### Explanation:

Assume – Arun's motorcycle uses 1L per day and therefore tank's Capacity = 10L.

25% increased per day =  $1+(25/100) = 5/4$  ie.

1.25L per day  
Days =  $10/1.25 = 8$

Last year there were 610 boys in a school. The number decreased by 20 percent this year. How many girls are there in the school if the number of girls is 175 percent of the total number of boys in the school this year ?

- A. 854
- B. 848
- C. 798
- D. 782

#### Answer & Explanation

A. 854

#### Explanation :

No of boys in a school last year = 610

No of boys in a school for this year

$$610 \times 80/100 = 122$$

$$610 - 122 = 488$$

$$\text{No of girls} = 175/100 * 488 = 854$$

A reduction of 20% percent in the price of rice enables a housewife to buy 5 kg more for rupees 1200. The reduced price per kg of rice

- a) 36
- b) 45
- c) 48
- d) 60
- e) None of these

#### Answer & Explanation

Answer – c) 48

#### Explanation :

let original price is  $x$  rupees per kg

$$1200/(4x/5) - 1200/x = 5$$

We will get  $x = 60$ , so reduced price =  $(4*60)/5 = 48$

The population of a village has increased annually at the rate of 20%. If at the end of 3 years it is 21600, the population in the beginning of the first year?

- a) 10000
- b) 12500
- c) 15000
- d) 17500
- e) None of these

#### Answer & Explanation

Answer – b) 12500

#### Explanation :

$$21600 = P * (1 + 20/100)^3$$

12 percent of the voters in an election did not cast their votes. In this election there are only two candidates. The winner by obtaining 45% of the total votes and defeated his rival by 2000 votes. The total number of votes in the election

- a) 50000
- b) 75000
- c) 100000
- d) 125000
- e) None of these

#### Answer & Explanation

Answer – c) 100000

#### Explanation :

12% percent didn't cast their vote. 45% of total votes get by the winning candidate, so remaining 43% will be scored by his rival. So,  $(45/100 - 43/100) * P = 2000$

$$P = 100000$$

A number is first decreased by 25%. The decreased number is then increased by 20%. The resulting number is less than the original number by 40. Then the original number is –

- a) 100
- b) 200
- c) 300
- d) 400
- e) None of these

#### Answer & Explanation

Answer – d) 400

#### Explanation :

Let the number is  $a$

$$a - (75/100)*a*(120/100) = 40$$

we will get  $a = 400$

The number of seats in a cinema hall is decreased by 8% and also the price of the ticket is increased by 4 percent. What is the effect on the revenue collected?

- a) increase 4.32%
- b) decrease 4.32%
- c) increase 3.32 percent
- d) decrease 3.32%
- e) None of these

#### Answer & Explanation

Answer – b) decrease 4.32%

#### Explanation :

Let initially seats are 100 and price of each seat is 100, so total initial revenue = 10000

now, seats are 92 and price of each seat = 104,

so total revenue =  $92 \times 104 = 9568$   
 so percent change in revenue =  $(432/10000) \times 100 = 4.32$  decrease

A man spends 60% of his income. His income is increased by 20% and his expenditure also increases by 10%. Find the percentage decrease in his saving?

- a) 10%
- b) 15%
- c) 20%
- d) 25%
- e) None of these

#### Answer & Explanation

Answer – a) 10%

#### Explanation :

Let initially income is 100. So, expenditure = 60 and saving = 40

now income is increased by 20% i.e. 120. So, expenditure =  $(70/100) \times 120 = 84$  and saving = 36

so % percent decrease in saving =  $(4/40) \times 100 = 10\%$

Weights of two friends A and B are in the ratio of 1:2. A's weight increases by 20% and the total weight of A and B together becomes 60 kg, with an increase of 30%. By what percent the weight of B increase?

- a) 30%
- b) 35%
- c) 40%
- d) 45%
- e) None

#### Answer & Explanation

Answer – b) 35%

#### Explanation :

weight of A is x and weight of B is 2x given that 60 kg weight is the 30% percent increase of the original weight, so  $(130/100) \times W = 60$ ,  $W = 600/13$  kg ( $W$  = original weight)

$$X + 2x = 600/13, x = 200/13$$

$$\text{So weight of A} = 200/13 \text{ and of B} = 400/13 \\ (120/100) \times (200/13) + [(100 + a)/100] \times (400/13) = 60$$

Solve for a. We will get a = 35%

The marked price of an article is 20% higher than the cost price. A discount of 20% is given on the marked price. In this

#### transaction the seller

- a) bears no loss no profit
- b) losses 4%
- c) gain 4%
- d) losses 1%
- e) None of these

#### Answer & Explanation

Answer – b) losses 4%

#### Explanation :

let cost price = 100 so, marked price = 120

now discount of 20% is given, so sp =

$$120 \times 80/100 = 96$$

so % loss =  $(4/100) \times 100 = 4$  percent

When the price of rice is increased by 30 percent, a family reduces its consumption such that the expenditure is only 20 percent more than before. If 50 kg of rice is consumed by family before, then find the new consumption of family (approx.)

- a) 43kg
- b) 44kg
- c) 45kg
- d) 46kg
- e) None of these

#### Answer & Explanation

Answer – d) 46kg

#### Explanation :

Suppose initially price per kg of rice is 100 then their expenditure is 5000.

Now their expenditure is only increased by only 20% i.e – 6000.

Increased price of rice = 130.

So new consumption =  $6000/130 = 46$

A man has 4000 rupees in his account two years ago. In the first year he deposited 20 percent of the amount in his account. In the next year he deposited 10 percent of the increased amount in the account. Find the total amount in the account of the person after 2 years.

- a) 6650
- b) 5280
- c) 5740
- d) 5840
- e) None of these

#### Answer & Explanation

Answer – b) 5280

#### Explanation :

$$4000 + 800 + 480 = 5280$$



**In an election contested by two parties A and B, party A secured 25 percent of the total votes more than Party B. If party B gets 15000 votes. By how much votes does party B loses the election?**

- a) 8000
- b) 10000
- c) 12000
- d) 15000
- e) None of these

#### Answer & Explanation

Answer – b) 10000

#### Explanation :

Let total votes = T and party B gets 15000 votes then party A will get  $T - 15000$  votes

$$T - 15000 = 15000 + 25\% \text{ of } T$$

$T = 40000$ , so A get 25000 and B gets 15000 votes, so difference = 10000

**A vendor sells 50 percent of apples he had and throws away 20 percent of the remainder. Next day he sells 60 percent of the remainder and throws away the rest. What percent of his apples does the vendor throw?**

- a) 20%
- b) 22%
- c) 24%
- d) 26%
- e) None of these

#### Answer & Explanation

Answer – d) 26%

#### Explanation :

Let total apples be 100

first day he throws =  $50 * 20 / 100 = 10$  apples

next day he throws =  $40 * 40 / 100 = 16$  apples

so total = 26

**40% of the women are above 30 years of age and 80 percent of the women are less than or equal to 50 years of age. 20 percent of all women play basketball. If 30 percent of the women above the age of 50 plays basketball, what percent of players are less than or equal to 50 years?**

- a) 50%
- b) 60%
- c) 70%
- d) 80%
- e) None of these

#### Answer & Explanation

Answer – c) 70%

#### Explanation :

take total women = 100

Women less than or equal to 50 years = 80 and women above 50 years = 20

20 = women plays basketball

30% of the women above 50 plays basketball = 6

So remaining 14 women who plays basketball are less than or equal to 50 years

$$\text{So } (14/20) * 100 = 70\%$$

**Alisha goes to a supermarket and bought things worth rupees 60, out of which 40 paise went on sales tax. If the tax rate is 10 percent, then what was the cost of tax free items?**

- a) 54.60
- b) 55.60
- c) 56.60
- d) 57.60
- e) None of these

#### Answer & Explanation

Answer – b) 55.60

#### Explanation :

$$\text{tax} = 40/100 = (10/100) * T, T = 4$$

so cost of tax free items =  $60 - 4 - 0.40 = 55.60$

**60 percent of the employees of a company are women and 75% of the women earn 20000 or more in a month. Total number of employees who earns more than 20000 per month in the company is 60 percent of the total employees. What fraction of men earns less than 20000 per month?**

- a) 5/8
- b) 5/7
- c) 1/5
- d) 3/4
- e) None of these

#### Answer & Explanation

Answer – a) 5/8

#### Explanation :

let total employees are 100

males = 40 and females = 60 (45 women earns more than 20000)

total 60 employee earns more than 20000 per month, so number of males earns more than 20000 is 15

$$\text{so fraction} = 25/40 = 5/8$$

In a library, 30% of the books are in History. 50% of the remaining are in English and 40% of the remaining are in German. The remaining 4200 books are in regional languages. What is the total number of books in library?

- a) 10000
- b) 15000
- c) 20000
- d) 25000
- e) None of these

#### Answer & Explanation

Answer – c) 20000

Explanation :

$$(70/100)*T*(50/100)*(60/100) = 4200$$

A got 30% of the maximum marks in an examination and failed by 10 marks.

However, B who took the same examination got 40% of the total marks and got 15 marks more than the passing marks. What were the passing marks in the examination?

- a) 65
- b) 75
- c) 80
- d) 90
- e) None of these

#### Answer & Explanation

Answer – e) None of these

Explanation :

$$(30/100)*T = P - 10$$

$$(40/100)*T = P + 15$$

U will get  $P = 85$

The population of a town is 15000. It increases by 10 percent in the first year and 20 percent in the second year. But in the third year it decreases by 10 percent. What will be the population after 3 years.

- a) 16820
- b) 15820
- c) 17820
- d) 19820
- e) None of these

#### Answer & Explanation

Answer – c) 17820

Explanation :

$$15000*(11/10)*(12/10)*(9/10) = 17820$$

30 litre of solution contains alcohol and water in the ratio 2:3. How much alcohol

must be added to the solution to make a solution containing 60% of alcohol?

- a) 10
- b) 12
- c) 14
- d) 15
- e) None of these

#### Answer & Explanation

Answer – d) 15

Explanation :

$$\text{alcohol} = 30*2/5 = 12 \text{ and water} = 18 \text{ litres}$$

$$(12+x)/(30+x) = 60/100, \text{ we will get } x = 15$$

2000 sweets need to be distributed equally among the school students in such a way that each student gets sweet equal to 20% of total students. Then the number of sweets, each student gets.

- a) 50
- b) 100
- c) 120
- d) 150
- e) None of these

#### Answer & Explanation

Answer – b) 100

Explanation :

$$(20/100)*t*t = 2000 \text{ (total students} = t)$$

In a library 5 percent books are in English, 10 percent of the remaining are in Hindi and 15 percent of the remaining are in Sanskrit. The remaining 11628 books are in French. Then find the total number of books in the library.

- a) 8000
- b) 12000
- c) 16000
- d) 20000
- e) None of these

#### Answer & Explanation

Answer – c) 16000

Explanation :

Let total books are A, then

$$(95/100)*(90/100)*(85/100)*A = 11628$$

A solution contains 10% of salt by weight. On evaporation 15 litre of water evaporates and now concentration of salt becomes 20 percent. Find the initial quantity of solution

- a) 20ltr
- b) 30ltr

- c) 40ltr
- d) 50ltr
- e) None of these

**Answer & Explanation**

Answer – b) 30ltr

**Explanation :**

Let initial quantity is x litre  
final, salt =  $(x/10)/(x - 15) = 20/100$

- A student has to get 40 percent marks to pass an examination. He got 60 marks but fails by 20 marks. Find the maximum marks of the examination.

- a) 150
- b) 200
- c) 300
- d) 400
- e) None of these

**Answer & Explanation**

Answer – b) 200

**Explanation :**

$(40/100)*M - 20 = 60$  (M is the maximum marks)

- The number of seats in a cinema hall is decreased by 12 percent and the price of tickets also decreased by 4 percent. Find the change in the collection of revenue.

- a) decrease 15.52%
- b) decrease 16.52%
- c) decrease 17.52%
- d) decrease 14.325
- e) Non

**Answer & Explanation**

Answer – a) decrease 15.52%

**Explanation :**

Let initial seats = 100 and cost per seat = 100,  
so initial revenue = 10000  
now final revenue =  $88*96 = 8448$   
% percent change in revenue =  $[(10000 - 8448)/10000]*100 = 15.52\%$

- A trader marks the price at 8 percent higher than the original price. Due to the hike in demand he again increases the price by 10 percent. How much percent profit he gets.

- a) 17.8%
- b) 18.8%
- c) 19.8%
- d) 20.8%
- e) None of these

**Answer & Explanation**

Answer – b) 18.8%

**Explanation :**

Suppose initial price = 100  
Then final price =  $100*(108/100)*(110/100) = 118.8$   
So percent profit = 18.8

- The population of a town is 15000. It increases by 10 percent in the first year and 20 percent in the second year. But in the third year it decreases by 10 percent. What will be the population after 3 years.

- a) 16820
- b) 15820
- c) 17820
- d) 19820
- e) None of these

**Answer & Explanation**

Answer – c) 17820

**Explanation :**

$15000*(11/10)*(12/10)*(9/10) = 17820$

- One type of liquid contains 20 percent milk and in other liquid it contains 30 percent milk. If 4 parts of the first and 6 parts of the second are taken and formed a new liquid A. Find the percentage of milk in third liquid.

- a) 26
- b) 28
- c) 29
- d) 30
- e) None of these

**Answer & Explanation**

Answer – a) 26

**Explanation :**

milk = 20 and water = 80 (in 1<sup>st</sup> liquid)  
milk = 30 and water = 70 (in 2<sup>nd</sup> liquid)  
milk in final mixture =  $20*4 + 30*6 = 260$   
so  $(260/1000)*100 = 26\%$

- A man has 2000 rupees in his account two years ago. In the first year he deposited 20 percent of the amount in his account. In the next year he deposited 10 percent of the increased amount in the account. Find the total amount in the account of the person after 2 years.

- a) 2650
- b) 2640
- c) 2740

- d) 2840  
e) None of these

**Answer & Explanation**

Answer – b) 2640

**Explanation :**

$2000 + 400 + 240 = 2640$  (400 in first year and 240 is added in the second year)

- 1000 sweets need to be distributed equally among the school students in such a way that each student gets sweet equal to 10% of total students. Then the number of sweets, each student gets.**

- a) 10  
b) 12  
c) 14  
d) 16  
e) None of these

**Answer & Explanation**

Answer – a) 10

**Explanation :**

No of students = T. Each student gets 10% of T. So, T students get  $T^2/10$  sweets.  
 $T^2/10 = 1000$ . We get T = 10

- If the price of an article is increased by 15%, then by how much the household should decrease their consumption so as to keep his expenditure same.**

- a)  $13(1/23)\%$   
b)  $13(2/23)\%$   
c)  $11(1/23)\%$   
d)  $11(2/23)\%$   
e) None of these

**Answer & Explanation**Answer – a)  $13(1/23)\%$ **Explanation :**

Decrease in expenditure =  $(15/115)*100 = 300/23 \%$

- If the price of an article is increased by 15%, then by how much the household should decrease their consumption so as to keep his expenditure same.**

- 1.13(1/23)%  
2.13(2/23)%  
3.11(1/23)%  
4.11(2/23)%  
5. None of these

**Answer & Explanation**Answer –  $1.13(1/23)\%$ **Explanation :**

Decrease in expenditure =  $(15/115)*100 = 300/23 \%$

- The ratio between male and female in a city is 3: 7. The children percentage among the males and females of the city is 25 and 30 percent respectively. If the number of adult males in the city is 18000, then find the population of the town?**

- 1.70000  
2.80000  
3.85000  
4.95000  
5. None of these

**Answer & Explanation**

Answer – 2.80000

**Explanation :**

Males and females are 3x and 7x respectively  
 $(3x)*75/100 = 18000$ . X = 8000  
 so total population =  $10*8000 = 80000$

- Pankaj gave 50 percent of the amount to akash. Akash in turn gave two-fifth of the amount to venu. After paying a bill of 500 rupees, venu now have 8000 rupees left with him. Find the amount hold by pankaj initially.**

- 1.41500  
2.42500  
3.43500  
4.45000  
5. None of these

**Answer & Explanation**

Answer – 2. 42500

**Explanation :**

Let pankaj have P amount initially  
 $[(50/100)*P]*2/5 - 500 = 8000$   
 $P = 42500$

- Rakesh spent 30 percent of his monthly income on food items. Of the remaining amount he spent 60 percent on clothes and bills. Now he save five-seventh of the remaining amount and the he saves 120000 yearly, then find his monthly income.**

- 1.40000  
2.50000  
3.60000

4.70000

5.None of these

**Answer & Explanation**

Answer – 2. 50000

**Explanation :**

Let monthly income is P

$$(70/100)*P*(40/100)*5/7 = 10000$$

$$P = 50000$$

**Weight of A and B are in the ratio of 3:5. If the weight of A is increased by 20 percent and then the total weight becomes 132 kg with an increase of 10 percent. B weight is increased by what percent.**

1.2%

2.3%

3.4%

4.5%

5.None of these

**Answer & Explanation**

Answer – 3. 4%

**Explanation :**Weight of A and B are  $3x$  and  $5x$ .

$$\text{Initial weight before increase} = (132*100)/110 = 120$$

$$8x = 120. X = 15$$

Initial weight of A and B are 45 and 75 kg respectively.

New weight of A = 54 so weight of B = 132 – 54 = 78.

$$\text{So \% increase} = [(78-75)/75]*100 = 4 \%$$

**When the price of rice is increased by 20 percent, a family reduces its consumption such that the expenditure is only 10 percent more than before. If 40 kg of rice is consumed by family before, then find the new consumption of family.**

1.35.2

2.35.2

3.36.2

4.37.2

5.None of these

**Answer & Explanation**

Answer – 2.35.2

**Explanation :**

Suppose initially price per kg of rice is 100 then their expenditure is 4000.

Now their expenditure is only increased by only 10% i.e – 4400.

Increased price of rice = 125.

$$\text{So new consumption} = 4400/125 = 35.2$$

**The price of rice is increased by 20 percent and a person decrease his consumption by 15 percent, so his expenditure on rice is-**

1.increase by 2 percent

2.increase by 4 percent

3.decrease by 2 percent

4.decrease by 4 percent

5.None of these

**Answer & Explanation**

Answer – 1.increase by 2 percent

**Explanation :**

Let initial price of rice – 100 and new price of rice – 120

suppose initial consumption is 100kg and new consumption is 85kg

Initial expenditure = 10000

New expenditure = 10200

$$(200/10000)*100 = 2 \text{ percent increase}$$

**A salary is 40 percent more than B. B's salary is 30 percent less than C. If the difference between the salary of C and A is 1200 rupees, then what is the monthly income of C**

1.50000

2.60000

3.70000

4.80000

5.None of these

**Answer & Explanation**

Answer – 2.60000

**Explanation :**

$$A = (140/100)*B$$

$$B = (70/100)*C$$

$$[(100/70) - (140/100)]*B = 1200.$$

$$B = 42000.$$

$$C = (100/70)*42000 = 60000$$

**When the price of rice is increased by 30 percent, a family reduces its consumption such that the expenditure is only 20 percent more than before. If 50 kg of rice is consumed by family before, then find the new consumption of family (approx.)**

1.43kg

2.44kg

3.45kg

4.46kg

5. None of these

#### Answer & Explanation

Answer – 4.46kg

#### Explanation :

Suppose initially price per kg of rice is 100 then their expenditure is 5000.

Now their expenditure is only increased by only 20% i.e – 6000.

Increased price of rice = 130.

So new consumption =  $6000/130 = 46.1$

- One type of liquid contains 20 percent of milk and second type of liquid contains 40 percent milk. If 4 part of the first and 6 part of the second are mix, then what is the percent of water in the mixture.

1.64%

2.66%

3.68%

4.70%

5. None of these

#### Answer & Explanation

Answer – 3.68%

#### Explanation :

Do these type of question by taking 100 litre water = 80ltr and 60ltr in first and second mixture respectively

now percent of water =  $[(80*4 + 60*6)/1000]*100 = 68\%$



- 40% of students like English and English. What % of the students like neither English nor Mathematics?

A) 25%

B) 10%

C) 20%

D) 60%

E) 80%

#### Answer & Explanation

C) 20%

#### Explanation:

$$n(M \text{ or } E) = n(M) + n(E) - n(M \text{ and } E)$$

$$n(M \text{ or } E) = 40+50-10 = 80$$

so % of the students who like neither English nor Mathematics =  $100 - 80 = 20\%$

- A watermelon weighing 20 kg contains 96% of water by weight. It is put in sun for

some time and some water evaporates so that now it contains only 95% of water by weight. The new weight of watermelon would be?

A) 17 kg

B) 15 kg

C) 18.5 kg

D) 16 kg

E) 18 kg

#### Answer & Explanation

D) 16 kg

#### Explanation:

Let new weight be x kg

Since the pulp is not being evaporated, the quantity of pulp should remain same in both cases. This gives

$$(100-96)\% \text{ of } 20 = (100-95)\% \text{ of } x$$

Solve,  $x = 16 \text{ kg}$

- If the price of wheat is reduced by 2%. How many kilograms of wheat a person can buy with the same money which was earlier sufficient to buy 49 kg of wheat?

A) 58 kg

B) 60 kg

C) 52 kg

D) 55 kg

E) 50 kg

#### Answer & Explanation

E) 50 kg

#### Explanation:

Let the original price = 100 Rs per kg

Then money required to buy 49 kg =  $49 * 100 = \text{Rs } 4900$

New price per kg is  $(100-98)\% \text{ of } 100 = 98$

So quantity of wheat bought in 4900 Rs is  $4900/98 = 50 \text{ kg}$

- Monthly salary of A is 30% more than B's monthly salary and B's monthly salary is 20% less than C's. If the difference between the monthly salaries of A and C is Rs 800, then find the annual salary of B.

A) Rs 14,500

B) Rs 16,800

C) Rs 15,000

D) Rs 16,000

E) None of these

#### Answer & Explanation

E) None of these

#### Explanation:

Let C's monthly salary = Rs 100, then B's =

$(100-20)\% \text{ of } 100 = 80$ , and A's monthly =  
 $(100+30)\% * 80 = 104$   
 If difference between A and C's monthly salary is Rs 4 then B's monthly salary is Rs 80  
 So if difference is Rs 800, B's monthly salary is  
 $(80/4) * 800 = 16,000$   
 So annual salary =  $12 * 16,000$

**Mixture 1 contains 20% of water and mixture 2 contains 35% of water. 10 parts from 1st mixture and 4 parts from 2nd mixture is taken and put in a glass. What is the percentage of water in the new mixture of glass?**

- A) 17 (5/7)%
- B) 24 (2/7)%
- C) 28 (1/5)%
- D) 24 (1/7)%
- E) 18 (2/7)%

#### Answer & Explanation

**B) 24 (2/7)%**

**Explanation:**

Water in new mixture from 1st mixture =  
 $(20/100) * 10 = 2$  parts  
 Water in new mixture from 2nd mixture =  
 $(35/100) * 4 = 7/5$  parts  
 Required % =  $[2 + (7/5)] / (10+4) * 100$

**3 years ago the population of a town was 1,60,000. In the three respective years the population increased by 3%, 2.5% and 5% respectively. What is the population of town after 3 years?**

- A) 1,77,366
- B) 1,66,366
- C) 1,76,736
- D) 1,80,766
- E) 1,69,766

#### Answer & Explanation

**A) 1,77,366**

**Explanation:**

New population =  $1,60,000 [(1 + (3/100)) [(1 + (2.5/100)) [(1 + (5/100))]$

**There are 2500 students who appeared for an examination. Out of these, 35% students failed in 1 subject and 42% in other subject and 15% of students failed in both the subjects. How many of the students passed in either of the 2 subjects but not in both?**

- A) 1925

- B) 1175
- C) 1275
- D) 1100
- E) 1800

#### Answer & Explanation

**B) 1175**

**Explanation:**

Failed in 1st subject =  $(35/100) * 2500 = 875$   
 Failed in 1st subject =  $(42/100) * 2500 = 1050$   
 Failed in both =  $(15/100) * 2500 = 375$   
 So failed in 1st subject only =  $875 - 375 = 500$   
 failed in 2nd subject only =  $1050 - 375 = 675$   
 passed in 1st only + passed in 2nd only =  
 $675 + 500$

**A bucket is filled with water such that the weight of bucket alone is 25% its weight when it is filled with water. Now some of the water is removed from the bucket and now the weight of bucket along with remaining water is 50% of the original total weight. What part of the water was removed from the bucket?**

- A) 2/5
- B) 1/4
- C) 2/3
- D) 1/2
- E) 1/3

#### Answer & Explanation

**C) 2/3**

**Explanation:**

Let original weight of bucket when it is filled with water = x

Then weight of bucket =  $(25/100) * x = x/4$   
 Original weight of water =  $x - (x/4) = 3x/4$   
 Now when some water removed, new weight of bucket with remaining water =  $(50/100) * x = x/2$   
 So new weight of water = new weight of bucket with remaining water - weight of bucket =  $[(x/2) - (x/4)] = x/4$   
 So part of water removed =  $[(3x/4) - (x/4)] / (3x/4)$

**In a survey done by a committee, it was found that 4000 people have smoking habit. After a month this number rose by 5%. However due to continuous advices given by the committee to the people, the number reduced by 5% in the next month and further by 10% in the next month. What is the total number of smokers after 3 months?**

- A) 3457  
 B) 3491  
 C) 3578  
 D) 3591  
 E) 3500

**Answer & Explanation****D) 3591****Explanation:**

Number of smokers after 3 months will be =  
 $4000 * (1 + (5/100)) (1 - (5/100)) (1 - (10/100))$   
 $= 3591$

There are 5000 students in a school. The next year it was found that the number of boys and girls increased by 10% and 15% respectively making the total number of students in school as 5600. Find the number of girls originally in the school?

- A) 4500  
 B) 2000  
 C) 3000  
 D) Cannot be determined  
 E) None of these

**Answer & Explanation****B) 2000****Explanation:**

Let number of girls = x, then no of boys = (5000-x). then  
 $10\% \text{ of } (1000-x) + 15\% \text{ of } x = (5600-5000)$   
 Solve, x = 2000

**If x is 2000****y is smaller than x**

- a)  $50/3\%$   
 b)  $40/3\%$   
 c)  $46/3\%$   
 d)  $47/3\%$

**Answer & Solution****Answer – a)  $50/3\%$** **Solution:**

$x = 120y/100$  or  $x = 6y/5$   
 $y = 5x/6$ . Percentage by which y is smaller  
 Than x is  $[(x - 5x/6)/x] * 100 = 50/3\%$

In an alloy, there is 15% of brass, to get 90 kg of brass, how much alloy is needed ?

- a) 400 kg  
 b) 500 kg  
 c) 600 kg  
 d) 700

**Answer & Solution****Answer – c) 600 kg****Solution:**

Let X kg of alloy is needed. So,  $15/100$  of X = 90. So X = 600 kg

25 litre of solution contains alcohol and water in the ratio 2:3. How much alcohol must be added to the solution to make a solution containing 60% of alcohol ?

- a) 10.5 ltr  
 b) 11.5 ltr  
 c) 12.5 ltr  
 d) 13.5 ltr

**Answer & Solution****Answer – c) 12.5 ltr****Solution:**

Initially alcohol  $2/5 * 25 = 10$  ltr and water is 15 ltr.

To make a solution of 60% alcohol  $(10+x)/25+x = 60/100$ . X = 12.5

In an examination if a person gets 20% of the marks then it is fail by 30 marks. Another person who gets 30% marks gets 30 marks more than the passing marks. Find out the total marks and the passing marks.

- a) 600 and 150  
 b) 600 and 180  
 c) 500 and 150  
 d) 500 and 180

**Answer & Solution****Answer – a) 600 and 150****Solution:**

$20\% \text{ of } X = P - 30$  (X = Maximum marks and P = passing marks)

$30\% \text{ of } X = P + 30$ . Solve for X and P.

A company has produced 900 pieces of transistor out of which 15% are defective and out of remaining 20 % were not sold. Find out the number of sold transistor.

- a) 610  
 b) 611  
 c) 612  
 d) 614

**Answer & Solution****Answer – c) 612****Solution:**

No of transistor sold =  $900 * (85/100) * (80/100) = 612$

In an election the votes between the winner and loser candidate are in the ratio 5:1. If total number of eligible voters are 1000, out of which 12% did not cast their vote and among the remaining vote 10% declared invalid. What is the number of votes the winner candidate get ?

- a) 620
- b) 630
- c) 640
- d) 660

#### Answer & Solution

Answer – d) 660

#### Solution:

Ratio b/w winner and loser 5:1

Total no of votes casted actually =  
 $1000 * (88/100) * (90/100) = 792$

$$5x + x = 792, X = 132$$

Votes of winner candidate =  $5 * 132 = 660$

If the price of a commodity is increased by 30%, by how much % a consumer must reduce his consumption so to keep the expenditure same ?

- a)  $100/13$
- b)  $200/13$
- c)  $300/13$
- d)  $400/13$

#### Answer & Solution

Answer – c)  $300/13$

#### Solution:

If commodity price is increased then reduction in consumption will be

$$[(\text{increase in price})/100 + \text{increase in price}] * 100. \\ (30/130) * 100 = 300/13\%$$

1000 sweets need to be distributed equally among the school students in such a way that each student gets sweet equal to 10% of total students. Then the number of sweets, each student gets.

- a) 10
- b) 12
- c) 14
- d) 16

#### Answer & Solution

Answer – a) 10

#### Solution:

No of students = T. Each student gets 10% of T.  
 So , T students get  $T^2/10$  sweets.

$T^2/10 = 1000$ . So  $T = 100$ . So each student gets 10 sweets

Rishi salary is first increased by 20% and then decreased by 25%. How much percent the salary increased/decreased ?

- a) 5%
- b) 10%
- c) 15%
- d) 20%

#### Answer & Solution

Answer – b) 10%

#### Solution:

Take 100 as rishi salary.

Increased by 20% percent = 120.

Then decreased by 25%, i.e =  $(75/100)*120 = 90$ .

So percentage decrease is 10%.

The income of a person is 10000 and its expenditure is 6000 and thus saves 4000rs. In the next year his income is increased by 10% and its expenditure increased by 20%. Now his saving is what percent lower than the previous saving.

- a) 5%
- b) 7.5%
- c) 10%
- d) 15%

#### Answer & Solution

Answer – a) 5%

#### Solution:

Initially  $I - E = S$  ( $I$  = Income,  $E$  = expenditure,  $S$  = saving)

$$10000 - 6000 = 4000(\text{saving})$$

Now,  $I = 11000$  and  $E = 7200$ . So saving =  $I - E = 3800$ .

$$[(4000 - 3800)/4000] * 100 = 5\%$$

From the salary, Akilesh spent 15% for house rent, 5% for children's education and 15% for Entertainment. Now he left with Rs.13,000. His salary is

- A) 19,000
- B) 20,000
- C) 18,000
- D) 15,000

#### Answer

B) 20,000

Explanation :

$$10+15+10 = 35\%$$

$$100-35 = 65\% = 13,000$$

$$100\% = 100*13000/65 = 20,000$$

In a School, 40% of the students are female and thus the no of boys exceed the no of girls by 40. Find the total no of students.

- A) 190
- B) 100
- C) 200
- D) 180

**Answer**

**C) 200**

Explanation :

$$60x - 40x = 40$$

$$X = 40/20 = 2$$

$$100*2 = 200$$

In an examination 30% of the students failed in Science, 45% of the students failed in Maths and 25% of the students failed in both subjects. Find the % of the students passed ?

- A) 60%
- B) 30%
- C) 45%
- D) 50%

**Answer**

**D) 50%**

Explanation :

$$\% \text{ of students failed} = 30+45-25 = 50\%$$

$$\% \text{ of students passed} = 100-50 = 50\%$$

In a [REDACTED] marks. [REDACTED] scored [REDACTED] total marks of three students ?

- A) 2110
- B) 1250
- C) 2450
- D) 2010

**Answer**

**A) 2110**

Explanation :

$$95\% = 650$$

$$100\% = 100*650/65 = 1000$$

$$56\% = 560$$

$$90\% = 900$$

$$\text{Total} = 650+560+900 = 2110$$

The salary of a workers increased by 15% and decreased by 7%, What % change rises

in his salary ?

- A) 10%
- B) 7%
- C) 5%
- D) 8%

**Answer**

**B) 7%**

Formula :  $x-y-(xy/100)$

$$\text{Explanation : } \% = 15 - 7 - [(15*7)/100] = (800 - 105)/100 = 6.95 = 7\%$$

The population of a village is decreased by 12% and 10% in 2 successive years. What % population is decreased after 2 years ?

- A) 18.4%
- B) 30.6%
- C) 20.8%
- D) 23.5%

**Answer**

**C) 20.8%**

Explanation :

$$\% = -12 - 10 + (-12*-10)/100$$

$$= (-2200 + 120)/100$$

$$= -2080/100 = -20.8\%$$

In an examination, 30% of the maximum marks required to pass. A student get 120marks and failed by 90marks. Find the maximum marks

- A) 800
- B) 720
- C) 650
- D) 700

**Answer**

**D) 700**

Explanation :

$$30x/100 = 120+90 = 210$$

$$X = 210*100/30 = 700$$

P's income is 20% more than Q's income. How much % Q's income less than P's income ?

- A) 18.54%
- B) 16.67%
- C) 17.76%
- D) 15.75%

**Answer**

**B) 16.67%**

Explanation :

$$B \text{ income} = 100$$

A income =  $100 \times 120 / 100 = 120$   
% =  $(120 - 100) / 120 \times 100 = 16.67\%$

The price of rice is increased by 15%. The percentage of reduction that a family should effect in that use of rice, so as not to increase the expenditure is

- A) 13%
- B) 10%
- C) 15%
- D) 17%

**Answer**

**A) 13%**

Formula :  $x \times 100 / x + 100$

Explanation : Reduction % =  $15 \times 100 / 100 + 15 = 1500 / 11513.04 = 13\%$

The value of commodity depreciated 20% annually. If the value of commodity 3 yrs ago was Rs.10,500, Find its present value ?

- A) 3678
- B) 5700
- C) 4567
- D) 5376

**Answer**

**D) 5376**

Explanation :

$$\begin{aligned} \text{Present value} &= \\ 10,500 \times 80 \times 80 \times 80 / 100 \times 100 \times 100 &= \\ 10500 \times 8 \times 8 \times 8 / 1000 &= \\ 5376 & \end{aligned}$$



One type of liquid contains 80% water. A glass filled with 8 parts of the first liquid and 5 parts of the second liquid. The water percentage in the new mixture is

- A) 25.75
- B) 25.76
- C) 25.67
- D) 25.56
- E) None of these

**Answer**

**Answer -B) 25.76%**

Explanation :

$$[(20 \times 8) + (35 \times 5)] / (8 + 5) = 335 / 13 = 25.76\%$$

In an examination there are 3 subjects Maths, Science and Social of 100 marks each. Ganesh scores 60% and 80% in Maths and

Science. He scored 70% in aggregate. His Percentage of mark in Social is

- A) 50
- B) 60
- C) 70
- D) 80
- E) None of these

**Answer**

**Answer -C) 70**

Total percentage of 3 subjects =  $3 \times 70 = 210$   
% in Social =  $210 - (60 + 80) = 210 - 140 = 70$   
Explanation :

If the radius of the circle is increased by 5% then the area is increased by

- A) 10.20
- B) 10.22
- C) 10.24
- D) 10.25
- E) None of these

**Answer**

**Answer -D) 10.25%**

$$5 + 5 + ([5 \times 5] / 100) = 10 + 0.25 = 10.25\%$$

Explanation :

A number is mistakenly divided by 8 instead of being multiplied by 8. What is the percentage of error in the result ?

- A) 98.43
- B) 98.34
- C) 95.76
- D) 97.76
- E) None of these

**Answer**

**Answer -A) 98.43**

Explanation :

$$\begin{aligned} \% \text{ of error} &= ([8x - (x/8)] / 8x) \times 100 \\ &= [64 - 1 / 64] \times 100 \\ &= 63 \times 100 / 64 = 98.43 \end{aligned}$$

A book consists of 45 pages, 30 lines on each page and 60 characters on each line. If this content is written in another note book consisting of 40 lines and 32 characters per line then the required no of pages will be how much percentage more than the previous no of pages ?

- A) 20%
- B) 30%
- C) 40%

- D)50%  
E)None of these

**Answer**

**Answer -C) 40%**

Explanation :

$$45 \times 30 \times 60 = X \times 40 \times 32$$

$$\text{Page } X = (45 \times 30 \times 60) / (40 \times 32) = 63.28 = 63$$

$$63 - 45 = 18$$

$$(18/45) \times 100 = 40\%$$

In an election a candidate who got 25% of the total votes polled was defeated by his rival by 270 votes. Assuming that there were only 2 candidates in the election, the total number of votes polled was

- A)400  
B)500  
C)440  
D)540  
E)None of these

**Answer**

**Answer -D) 540**

Explanation :

$$75\% x - 25\% x = 270$$

$$50\% \text{ of } x = 270$$

$$X = (270 \times 100) / 50 = 540$$

The total number of girls in a class is 45% more than the total number of boys in the class. The total number of students in the class is 294 then what is the difference between the total number of girls and boys ?

- A)54  
B)52  
C)76  
D)78  
E)70

**Answer**

**Answer -A) 54**

Explanation :

$$\text{No of boys} = x$$

$$\text{No of girls} = X + x(45/100)$$

$$= 29x/20$$

$$\text{Total} = X + (29x/20) = 294$$

$$49x = 294 \times 20 = 5880$$

$$X = 5880/49 = 120(\text{boys})$$

$$\text{Girls} = (29 \times 120)/20 = 174$$

$$\text{Difference} = 174 - 120 = 54$$

The population of a town is 16500. During the last 3 years, the population increased at

the rate of 20% per year. The population 3 years ago was

- A)9546  
B)9547  
C)9548  
D)9549  
E)9550

**Answer**

**Answer -D) 9549**

Explanation :

$$= 16500 / \{1 + (20/100)\}^3$$

$$= (16500 \times 10 \times 10 \times 10) / (12 \times 12 \times 12)$$

$$= 9548.6 = 9549$$

The mean annual salary paid to all employees was Rs.5000. The mean annual salary paid to all male and female workers were Rs.5200 and Rs.4200. The percentage of female worker in the company is

- A)80%  
B)20%  
C)60%  
D)40%  
E)None of these

Answer B 20%

The passing marks in an examination is 40%. If Ashok gets 88 marks and is declared failed by 10 marks, then the maximum mark in the examination is

- A)240  
B)242  
C)245  
D)246  
E)None of these

**Answer**

**Answer -C) 245**

Explanation :

$$88 + 10 = 98$$

$$\text{Pass mark} = 40\%$$

$$\text{Maximum mark} = (98 \times 100) / 40 = 245$$

# 120+ PROFIT & LOSS QUESTIONS WITH SOLUTION

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1. A Shopkeeper buys two bicycles for Rs. 750. He sells first bicycle at a profit of 22% and the second bicycle at a loss of 8%. What is the SP of first bicycle if in the whole transaction there is no profit no loss?
- A) Rs506  
B) Rs244  
C) Rs185  
D) Rs230  
E) None

**View Answer****Option B****Solution:**CP of 1st bicycle = $x$ Then CP of 2nd bicycle is  $750-x$ .Their SP be  $122/100*x$  and  $92/100*(750-x)$ 

Given that there is no profit no loss.

$$122/100*x + 92/100*(750-x) = 750$$

$$122x + 750*92 - 92x = 750*100$$

$$122x - 92x = 750*100 - 750*92$$

$$30x = 750 * (100-92)$$

$$X=200.$$

$$SP \text{ of 1st bicycle} = 122/100 * 200 = \text{Rs}244.$$

2. The cost price of item B is Rs. 200/- more than the cost price of item A. Item A was sold at a profit of 20% and item B was sold at a loss of 30%. If the respective ratio of selling prices of items A and B is 6 : 7, what is the cost price of item B?
- A) Rs520  
B) Rs430  
C) Rs400  
D) Rs360  
E) None

**View Answer****Option C****Solution:**Let the CP of item A be  $x$ CP of item B is  $x+200$ .

$$(120/100*x)/(x+200)*70/100 = 6/7$$

$$120x/(x+200)*70 = 6/7$$

$$20x/10(x+200) = 1$$

$$X=\text{Rs}200.$$

$$CP \text{ of item B is } 200+200 = \text{Rs}400.$$

3. Two Mangoes, three grapes and four apples cost Rs. 15. Three Mangoes, two grapes

and one apple cost Rs. 10. I bought 3 Mangoes, 3 grapes and 3 apples. How much did I pay?

- A) Rs15  
B) Rs18  
C) Rs20  
D) Rs25  
E) None

**View Answer****Option A****Solution:**Mango= $X$ ; Grape =  $Y$ ; Apple =  $Z$  ;

$$2X+3Y+4Z= 15 — 1$$

$$3X+2Y+Z= 10 — 2$$

Adding (1) and (2)  $5X+5Y+5Z= 25$ Clearly,  $X+ Y+Z = 5$ .So cost of 3 Mangoes, 3 grapes and 3 apples will be  $3X+3Y+3Z$  i.e, 15

4. A watch dealer incurs an expense of Rs. 150 for producing every watch. He also incurs an additional expenditure of Rs. 30,000, which is independent of the number of watches produced. If he is able to sell a watch during the season, he sells it for Rs. 250. If he fails to do so, he has to sell each watch for Rs. 100. If he produces 1500 watches, what is the number of watches that he must sell during the season in order to breakeven, given that he is able to sell all the watches produced?
- A) 580  
B) 620  
C) 650  
D) 700  
E) None

**View Answer****Option D****Solution:**Total cost to produced 1500 watches =  $(1500 \times 150 + 30000) = \text{Rs. } 2,55,000$ Let he sells  $x$  watches during the season, thereforenumber of watches sold after the season =  $(1500 - x)$ 

$$250 \times x + (1500 - x) \times 100 = 150x +$$

$$150000$$

Now, break-even is achieved if production

cost is equal to the selling price.

$$150x + 150000 = 2,55,000$$

$$x = 700$$

5. A dealer offers a cash discount of 20% and still makes a profit of 20%, when he further allows 16 articles to a dozen to a particularly sticky bargainer. How much per cent above the cost price were his wares listed ?
- A) 100%  
B) 80%  
C) 75%  
D) 85%  
E) None

[View Answer](#)

#### Option A

**Solution:**

$$MP=120/(80/100)=150$$

Now he is selling 16 goods to a dozen(ie 12),

$$\text{so his loss} = \{(16-12)/16\} \times 100 = 25\%.$$

Then the actual MP  $150/(75/100)=200$

Hence, he has marked the MP 100% above the CP.

6. Profit earned by an organisation is distributed among officers and clerks in the ratio of 5 : 3. If the number of officers is 55 and the number of clerks is 70 and the amount received by each officer is Rs12,000, what was the total amount of profit earned?
- A) Rs11 Lakh  
B) Rs12.25Lakh  
C) Rs10.56Lakh  
D) Rs16Lakh  
E) None

[View Answer](#)

#### Option C

**Solution:**

The total amount distributed among 55 officers =  $Rs.55 \times 12000 = Rs.6,60,000$ .

Their ratio 5:3

Then 5 660000

3 ? 396000

$$\text{Total profit} = 6,60,000 + 396000$$

$$= Rs10,56,000.$$

7. The percentage profit earned by selling an article for Rs. 2120 is equal to the percentage loss incurred by selling the same article for Rs. 1520. At what price should the article be sold to make 25% profit?
- A) Rs2275  
B) Rs2100  
C) Rs2650  
D) Rs2400  
E) None

[View Answer](#)

#### Option A

**Solution:**

The CP be

$$2120+1520=3640$$

$$3640/2=1820.$$

$$SP=1820*125/100=1820*5/4$$

$$=Rs2275$$

8. A purchased a machine at Rs 13,000 , then got it repaired at Rs 3500, they gave its transportation charges Rs500. Then he sold it at 50% profit. At what price he actually sold it?
- A) Rs18500  
B) Rs25500  
C) Rs22200  
D) Rs19600  
E) None

[View Answer](#)

#### Option B

**Solution:**

The CP is  $13000+3500+500=17000$

Then SP

$$100 \ 17000$$

$$150 ? ==> 25500$$

9. In a certain store, the profit is 270% of the cost. If the cost increases by 30% but the selling price remains constant, approximately what %ge of the selling price is the profit.
- A) 68%  
B) 72%  
C) 50%  
D) 65%  
E) None

**View Answer****Option D****Solution:**

Let C.P.= Rs. 100.

Then, Profit = Rs. 270,

S.P. = Rs. 370.

New C.P. = 130% of Rs. 100 = Rs. 130

New S.P. = Rs. 370.

Profit = Rs.  $(370 - 130)$  = Rs. 240

Required percentage =  $(240/370) * 100 = 64.86 = 65\%$  (approx)

10. A person X sold an Item to Y at 40% loss, then Y sold it to third person Z at 40% profit and finally Z sold it back to X at 40% profit. In this whole process what is the percentage loss or profit of X?
  - A) 70%
  - B) 62.5%
  - C) 57.6%
  - D) 55%
  - E) None

**View Answer****Option C****Solution:**

Let the CP = Rs.100. for X.

Y's CP = Rs.60.

Z's CP = Rs.84.

Finally, X's CP = Rs.117.6.

$\therefore$  X's loss =  $117.6 - 60 = \text{Rs.} 57.6$

$\therefore$  X's loss percent = 57.6%

1. If Joel sells an article at  $\frac{4}{5}$ th of its selling price and secures a profit of 20%, what will be the profit or loss percentage if he sells it at the actual selling price?
  - A) 45%
  - B) 60%
  - C) 50%
  - D) 56%
  - E) None

**View Answer****Option C****Solution:**

Let CP is Rs100

Profit 20% Means  $\Rightarrow 120$ .

$120 = 4/5 \text{SP} \Rightarrow \text{SP} = 150$ .

Then profit %ge is 50%

2. A product costs a company Rs 60 to manufacture, and it sold the product to a dealer for Rs 70, who in turn sold it to a shopkeeper for Rs 85, who sold to a customer for Rs 102. What is the percentage of profit for the company and who made the highest profit on selling the product?
  - A)  $20\frac{1}{3}\%$ , Company
  - B)  $16\frac{2}{3}\%$ , Dealer
  - C)  $20\frac{1}{3}\%$ , Dealer
  - D)  $16\frac{2}{3}\%$ , Shopkeeper
  - E) None

**View Answer****Option B****Solution:**

Company Profit %ge is  $(70 - 60)/60 * 100 = 100/6 = 16\frac{2}{3}\%$ .

Then Dealers Profit %ge is  $(85 - 70)/15 * 100 = 150/7 = 21\frac{3}{7}\%$ .

Then Shopkeeper Profit %ge is  $(102 - 85)/17 * 100 = 20$

Among the three Dealer get the highest profit %ge.

3. Navya buys a certain number of toys at 12 per Rs 9 and the same number at 18 per Rs 9. If she sells them at 18 per Rs15 does she gain or lose and by what percentage?
  - A)  $33\frac{1}{3}\%$  loss
  - B) 12% gain
  - C)  $33\frac{1}{3}\%$  gain
  - D) 12% loss
  - E) None

**View Answer****Option C****Solution:**

She bought 12 toys at Rs 9.

And 18 toys at Rs 9  
 Then 12toys = 18 9  
 12 ?==6  
 Total 24toys =(9+6)15.  
 She sells 18 toys at Rs 15.  
 Now 18 15  
 $(12+12) 24 ? ==>20$   
 Profit %ge is  $15/20*100=300/4=33 \frac{1}{3}\%$ .

4. A shopkeeper sells Marker at the rate of Rs.35 each and earns a commission of 10%. He also sells Gel pen at the rate of Rs. 65 each and earns a commission of 20%. How much amount (in rupees) of commission will he earn in 2 weeks, if he sells 12 markers and 8 Gel pens a day?  
 A) 2100  
 B) 1850  
 C) 2044  
 D) 2680  
 E) None

[View Answer](#)

**Option C**

**Solution:**

Commission for marker= $(35*12)*10/100=42$   
 Commission for Gel pen  
 $=(65*8)*20/100=104$   
 Total Commission earned in 2 weeks is,  
 $(104+42)*14=2044.$

5. A discount of 20% is given on the marked price of an article. The shopkeeper charges sales tax of 10% on the discounted price. If the selling price be Rs 1848, what is the marked price (in rupees) of the article?  
 A) 2500  
 B) 3200  
 C) 3600  
 D) 2100  
 E) None

[View Answer](#)

**Option D**

**Solution:**

Let the MP be x  
 Then  $x* 80/100(20\% \text{ discount})$   
 $*110/100(10\% \text{ sales}) = 1848$   
 $X=2100$

6. A calculate his profit %ge on the selling price whereas B calculate his on the cost price. They find that the difference of their profit is Rs 150. If the selling price of both of them are same and both of them get 20% profit, find their selling price (in rupees).  
 A) 2500  
 B) 3000  
 C) 3200  
 D) 4000  
 E) None

[View Answer](#)

**Option E**

**Solution:**

Let SP is x  
 A's profit =  $x*20/120=x/6$   
 B's profit =  $x*20/100=x/5$   
 Diff is  $x/6-x/5=150$   
 $x/30=150==>x=4500$

7. A person sells two fans for Rs. 6800. The cost price of the first fan is equal to the selling price of the second fan. If the first is sold at 30% loss and the second at 100% gain, what is total profit or loss (in rupees)?  
 A) 750  
 B) 800  
 C) 670  
 D) 580  
 E) None

[View Answer](#)

**Option B**

**Solution:**

Let the cp of 1st fan = sp of 2nd fan = Rs 100  
 $\therefore$  sp of 1st fan = 70 (loss 30%)  
 Cp of 2nd fan = 50 (profit 100%)  
 $\text{Total cp} = 100 + 50 = 150$   
 and total sp =  $70 + 100 = 170$   
 $\therefore$  When SP = 6800,  
 then cp =  $150/170 \times 6800 = 6000$

- $\therefore \text{Profit} = 6800 - 6000 = 800$
8. A dealer allowed a discount of 25% on marked price of Rs.20,000 on an article and incurred a loss of 20%. What discount should he allow on the marked price so that he gains Rs.450 on the article?
- A) 6.5%  
B) 5%  
C) 4.25%  
D) 4%  
E) None
10. A reputed company sells a wrist watch to a wholesaler making a profit of 10%. The wholesaler, in turn, sells it to the retailer making a profit of 10%. A customer purchases it by paying Rs. 990. Thus the profit of retailer is  $2(3/11)\%$ . What is the cost (in rupees) incurred by the company to produce it?
- A) 600  
B) 700  
C) 800  
D) 900  
E) None

**View Answer****Option D****Solution:**

$$\begin{aligned} 25\% \text{ discount} &=> 20,000 * 75/100 = 15000 \\ \text{Then loss } 20\% \text{ means} \\ x * 80/100 &= 15000 \Rightarrow x = 18750 \\ \text{He gain } 450 \text{ means } SP &= 18750 + 450 = 19200 \\ \text{Now } 20000 - 19200 &= 800 \\ \% \text{ ge} &= 800/20000 * 100 = 4\% \end{aligned}$$

9. A dealer marked the price of an item 20% above cost price. He allowed two successive discounts of 20% and 25% to a customer. As a result he incurred a loss of Rs.1400. At what price (in rupees) did he sell the item to the customer?
- A) 3600  
B) 4200  
C) 3850  
D) 4125  
E) None

**View Answer****Option A****Solution:**

$$\begin{aligned} CP &= 100 \\ MP &= 120 \\ 120 * 80/100 &= 96; 96 * 75/100 = 72 \\ \text{Loss} &= 100 - 72 = 28\% \\ CP &= 100/28 * 1400 = 5000 \\ SP &= 5000 * 72/100 = 3600 \end{aligned}$$

**View Answer****Option C****Solution:**

$$\begin{aligned} x * 110/100 * 110/100 * (100 + 25/11)/100 &= 990 \\ x &= 800 \end{aligned}$$

1. A dealer buys a product at Rs. 1920 , he sells at a discount of 20% still he gets the profit of 20% . What is the selling price of that product?
- A) Rs.1159  
B) Rs.1550  
C)Rs.2304  
D) Rs.1785  
E) Rs.1245

**View Answer****Option C****Solution:**

$$\begin{aligned} CP &\longrightarrow SP \longrightarrow MP \\ 100 &\longrightarrow (20\% \text{ profit}) \longrightarrow 120 \longrightarrow (20\% \text{ discount}) \longrightarrow 150 \\ \Rightarrow SP &= 1.2CP = 2304 \end{aligned}$$

2. The ratio of cost price and marked price of an article is 2:3 and ratio of percentage profit and percentage discount is 3:2. What is the discount percentage ?
- A) 18.58%  
B) 20.25%  
C) 16.66%

- D) 22.13%  
E) 14.51%

**View Answer**

**Option C**

**Solution:**

$$CP : MP = 2x : 3x$$

$$\Rightarrow \text{profit} = x$$

$$\text{profit \% : discount \%} = 3 : 2$$

$$\text{Let } CP = 200, SP = 300$$

$$\text{But } (3x/100)*200 + (2x/100)*300 = 100$$

$$\Rightarrow x = 8.33\%$$

$$\text{Discount } 2x = 16.66\%$$

3. A firm of readymade garments makes both men's and women's shirts. Its average profit is 6% of the sales. Its profit in men's shirts average 8% of the sales and women's shirts comprise 60% of the output. Find the average profit per sales rupee in women's shirts .
- A) 1.2560  
B) 0.0125  
C) 0.0566  
D) 0.0466  
E) 1.1562

**View Answer**

**Option D**

**Solution:**

According to questions,  
women's shirts comprise 60% of the output.

Therefore, Men's shirts comprise 40% of the output.

Average profit from men's shirts = 8% of 40 = 3.2 out of 40

Overall average profit = 6 out of 100

Average profit from women's shirts = 2.8 out of 60  
= 0.0466 out of each shirt.

4. A shopkeeper marks his goods 20% above his cost price and gives 15% discount on the marked price. Find his gain% .
- A) 2%  
B) 8%  
C) 11%  
D) 6%  
E) 7%

**View Answer**

**Option**

**Solution:**

$$CP = 100, MP = 120$$

$$D = (15/100)*120 = 18\%$$

$$SP = 102$$

$$P\% = (P/CP)*100 = (2/100)*100 = 2\%$$

5. A, B and C invest in the ratio of 3 : 4 : 5 . The percentage of return on their investments are in the ratio of 6 : 5 : 4 . Find the total earnings, if B earns Rs. 250 more than A.
- A) 7500  
B) 6999  
C) 4575  
D) 7250  
E) 2500

**View Answer**

**Option D**

**Solution:**

$$\begin{array}{rcl} & A & B \\ \text{Investment} & 3x & 4x \\ \hline & 5x & \\ \text{Rate of return} & 6y\% & 5y\% \\ \hline & 4y\% & \\ \text{Return} & (18xy/100) & \\ & (20xy/100) & - (20xy/100) \\ \text{Total} & = (18+20+20) = 58xy/100 & \\ B's \text{ earnings} - A's \text{ earnings} & = 2xy/100 = 250 & \\ \text{Total earnings} & = 58xy/100 = 7250 & \end{array}$$

6. Jagran group launched a new magazine in January 2004. The group printed 10000 copies initially for Rs. 50000. It distributed 20% of its stock freely as specimen copy and 25% of the rest magazines are sold at 25% discount and rest at 16.66% discount whose printing price was Rs. 12 per copy . What is the overall gain or loss in the first month's issue of magazine, if the magazine could not realize the income from advertisements or other resources?
- A) 56%  
B) 62%  
C) 74%

- D) 50%  
E) 68%

**View Answer**

**Option A**

**Solution:**

Total cost = Rs.50,000  
 Total sale price =  $2000 * 9 + 6000 * 10 = 78,000$   
 $\text{Profit\%} = (28000/50000)*100 = 56\%$

7. A dishonest trader marks up his goods by 80% and gives discount of 25%. Besides he gets 20% more amount per kg from wholeseller and sells 10% less per kg to customer. What is the overall profit percentage ?  
 A) 63%  
 B) 72%  
 C) 88%  
 D) 55%  
 E) 80%

**View Answer**

**Option E**

**Solution:**

$CP = 100/120 = 10/12$   
 $SP = 135/90 = 18/12$   
 $\text{Profit\%} = \{[(18/12) - (10/12)]/(10/12)\} * 100 = 80\%$

8. By selling 12 marbles for a rupee, a shopkeeper loses 20%. In order to gain 20% in the transaction, he should sell the marbles at the rate of how many marbles for a rupee?  
 A) 14  
 B) 8  
 C) 11  
 D) 9  
 E) 22

**View Answer**

**Option B**

**Solution:**

$SP \text{ of } 12 \text{ marbles} = \text{Rs.1}$ , loss = 20%  
 $CP \text{ of } 12 \text{ marbles} = \text{Rs. } (1/0.8) = \text{Rs. } 1.25$   
 $SP \text{ of } 12 \text{ marbles at a gain of } 20\%$   
 $CP * 1.2 = 1.25 * 1.2$

= Rs. 1.5

It means in order to gain 20%, he should

sell 12 marbles for Rs.1.5

For Rs. 1 , he should sell  $12/1.5 = 8$  marbles

9. A shopkeeper bought a DVD marked at Rs. 200 at successive discounts of 10% and 15% respectively. He spent Rs. 7 on transport and sold the table for Rs.208 .What will be his profit percentage ?  
 A) 58%  
 B) 44%  
 C) 30%  
 D) 50%  
 E) 62%

**View Answer**

**Option C**

**Solution:**

Single equivalent discount for 10% and 15% =  $(15 + 10 - (15*10/100))\% = 23.5\%$

$CP \text{ of DVD} = 200*(100- 23.5)\% = \text{Rs.153}$   
 $\text{Expense on transport} = \text{Rs. } 7$   
 $\text{Actual CP} = 153 + 7 = \text{Rs. } 160$   
 $\text{Profit\%} = [(208 - 160)/160]*100 = 30\%$

10. The cost of setting up a magazine is Rs.2800. The cost of paper and ink is Rs.80/ 100 copies and printing cost is Rs. 160 / 100 copies. In the last month 2000 copies were printed but only 1500 copies could be sold at Rs. 5 each . Total 25% profit on the sale price was realized. There is one more resource of income from the magazine which is advertising. What sum of money was obtained from the advertising in magazine?  
 A) Rs.1654  
 B) Rs.1522  
 C) Rs.1750  
 D) Rs.1975  
 E) Rs.1800

**View Answer**

**Option D**

**Solution:**

$\text{Setup cost} = \text{Rs.2800}$   
 $\text{Paper , ink} = \text{Rs. } 1600$

Printing cost = Rs. 3200

Total cost = Rs. 7600

Total sale price =  $1500 * 5 = 7500$

Let the amount obtained from advertising is

x,

then

$$(7500+x) - 7600 = 25\% \text{ of } 7500$$

$$\Rightarrow x = 1975$$

1. A dealer offers a discount of 20% and still makes a profit of 20% and he further allows 4 articles free on the sale of 12 articles. Find the ratio of cost price to market price.
  - A) 1:2
  - B) 4:5
  - C) 3:7
  - D) 2:5
  - E) 5:7

[View Answer](#)

### Option A

**Solution:**

$$\text{Formula : } MP(1 - d\%) = CP(1+g\%)$$

$$MP(80/100) = CP(120/100)$$

$$CP/MP = 80/120 \quad (1)$$

Now,

16 articles given in the cost of 12 articles

$$MP \text{ of one article} = \text{total} / 12 \quad (2)$$

$$CP \text{ of one article} = \text{total} / 16 \quad (3)$$

For one article:

$$CP/MP = (80/16)/(120/12) = 1/2$$

2. A and B are dealers of a bike company. The price of a bike is Rs.28,000. A gives a discount of 10% on whole , while B gives a discount of 12% on the first Rs.20,000 and 8% on the rest Rs.8000. What is the difference between their selling price?
  - A) Rs.110
  - B) Rs.180
  - C) Rs.240
  - D) Rs.200
  - E) Rs.90

[View Answer](#)

### Option C

**Solution:**

$$A' \text{ s discount} = 2800$$

$$B' \text{ s discount} = 2400 + 640 = 3040$$

$$\text{Required difference} = 3040 - 2800 = \text{Rs.}240$$

3. Sonata sells a wrist watch to a wholesaler making a profit of 10%. The wholesaler sells it to the retailer making a profit of 10%. A customer purchases it by paying Rs.990. Thus the profit of retailer is  $2(3/11)\%$  what is the cost incurred by the Sonata to produce it?
  - A) Rs.755
  - B) Rs.950
  - C) Rs.850
  - D) Rs.550
  - E) Rs.800

[View Answer](#)

### Option E

**Solution:**

$$[((x*1.1)*1.1)*(1125/1100)] = 990$$

$$\Rightarrow x = 800$$

4. Fanta and Coke, there are two companies, selling the packs of cold-drinks. For the same selling price Fanta gives two successive discounts of 10% and 25%. While Coke sells it by giving two successive discounts of 15% and 20%. What is the ratio of their marked price?
  - A) 110:111
  - B) 120:125
  - C) 131:133
  - D) 136:135
  - E) 140:141

[View Answer](#)

### Option D

**Solution:**

$$\text{Fanta} * 0.9 * 0.75 = \text{Coke} * 0.85 * 0.80$$

$$\text{Fanta/Coke} = 136/135$$

5. Profit on selling 10 candles equals selling price of 3 bulbs. While loss on selling 10 bulbs equals selling price of 4 candles. Also profit percentage equals to the loss percentage and cost of a candle is half of the cost of a bulb. What is the ratio of selling price of candle to the selling price of a bulb?
- A) 2:1  
B) 3:2  
C) 7:9  
D) 5:3  
E) 3:1

**View Answer****Option B****Solution:**

Candle ————— Bulb  
 CP ....x ————— y  
 SP.....a—————b

and  $y = 2x$

Profit =  $10(a - x) = 3b$

Loss =  $10(y - b) = 4a$

Profit% =  $(3b/10x)*100$  ———(1)

and Loss% =  $(4a/10y)*100$  ———(2)

Again,

equating (1) & (2), we get

$a/b = 3/2$

6. A person wants to reduce the trade tax so he calculates his profit on the sale price instead of on the cost price. In this way by selling a article for Rs. 280 he calculates his profit as  $14\frac{2}{7}\%$ . What is his actual profit percentage ?
- A) 20.12%  
B) 16.66%  
C) 15.66%  
D) 22.21%  
E) 31.11%

**View Answer****Option B****Solution:**

CP ————— SP

$240.....(- 14 \frac{2}{7}).....280$

Actual profit% =  $(40/240)*100 = 16.66\%$

7. A person sold an electronic watch at Rs. 96 in such a way that his percentage profit is same as the cost price of the watch . If he sells it at twice the percentage profit of its previous percentage then find the new selling price.
- A) Rs.132  
B) Rs.120  
C) Rs.123  
D) Rs.100  
E) Rs.110

**View Answer****Option A****Solution:**

$$SP = x + (x*x)/100 = 96\%$$

$$\Rightarrow x = 60$$

$$\text{New , } SP = 60+(60*120)/100 = \text{Rs. 132}$$

8. A bookseller procures 40 books for Rs. 3200 and sells them at a profit equal to the selling price of 8 books. What is the selling price of one dozen books, if the price of each book is same?
- A) Rs.1300  
B) Rs.1100  
C) Rs.800  
D) Rs.1200  
E) Rs.1000

**View Answer****Option D****Solution:**

$$CP = \text{Rs. } 3200/40 = \text{Rs. } 80$$

Now SP of 40 books = CP of 40 books + SP of 8 books

$$\Rightarrow SP of 32 books = 3200$$

$$SP of 1 book = \text{Rs. } 100$$

Therefore,

Required SP of 1 dozen books =  $\text{Rs. } 1200$

9. A firm of readymade garments makes both men's and women's shirts. Its average profit is 6% of the sales. Its profit in men's shirts average 8% of the sales and women's shirts comprise 60% of the output. What is the

average profit per sales rupee in women's shirts.

- A) 0.1243
- B) 0.5416
- C) 0.0466
- D) 0.5247
- E) 0.2451

**View Answer**

**Option C**

**Solution:**

Women's shirts comprise = 60%

Men's shirts comprise = 40%

Average profit from men's shirts = 8% of 40 = 3.2 out of 40

Overall average profit = 6 out of 100

Average profit from women's shirts = 2.8 out of 60 i.e. 0.0466 out of each shirt.

10. Of the two varieties of rice available, variety A is bought at Rs.32 per kg and variety B at Rs.80 per kg. Two varieties of rice are mixed together in the respective ratio of 8:5 and the mixture is sold at Rs.72 per kg. What per cent of profit approximately the seller receives ?
  - A) 50%
  - B) 40%
  - C) 30%
  - D) 55%
  - E) 43%

**View Answer**

**Option E**

**Solution:**

Let 8 kg of first variety of rice and 5 kg of second variety is mixed.

CP of 13 kg of rice =  $(8 \times 32 + 5 \times 32) = \text{Rs. } 656$

SP of 13 kg of rice =  $72 \times 13 = \text{Rs. } 936$

Profit =  $936 - 656 = \text{Rs. } 280$

Profit% =  $(280/656) \times 100 = 43\%$



Raman calculates his profit % on the selling

price whereas Rajeev calculates his on the cost price. They find that the difference of their profits Rs.150. If the selling price of both the m are the same and both of them get 50% profit. Find their selling price.

- A) Rs. 620
- B) Rs. 900
- C) Rs.870
- D) Rs.750
- E) Rs.550

**View Answer**

**Option B**

**Solution:**

$$\text{Selling price} = [\text{Diff.} * 100 * (100 + 50)] / (50)^2 \\ = [150 * 100 * 150] / 2500 = 900$$

A trader has 600kgs of rice , a part of which he sells at 15% profit and the remaining quantity at 20% loss. On the whole , he incurs an overall loss of 6% .What is the quantity of rice he sold at 20% loss?

- A) 300kg
- B) 410kg
- C) 360kg
- D) 210kg
- E) 500kg

**View Answer**

**Option C**

**Solution:**

Quantity of rice sold at 20% loss = x kg (let)

Quantity of rice sold at 15% gain =  $(600 - x)$  kg

$$(600 - x) * (115/100) + (x * 80)/100 = (600 * 94)/100 \\ \Rightarrow x = 12600/35 = 360 \text{ kg}$$

A camel and a cart together cost Rs. 5000.If by selling the camel at a profit of 10% and the cart at a loss of 10% a total profit of 2.5% is made ,then what is the cost price of the camel ?

- A) Rs.4500
- B) Rs. 3125
- C) Rs. 3000
- D) Rs.2100
- E) Rs.3800

**View Answer**

**Option B**

**Solution:**

Let the cp of the camel and the cart be x and  $(8000-x)$  resp.

sp of camel = 1.1x

sp of cart = 0.9(5000-x)

Therefore ,

$$1.1x * 0.9(5000 - x) = 5000 * 1.025$$

$$\Rightarrow x = \text{Rs. } 3125$$

- If there is a loss of 40% when a good is sold at  $(2/5)$ th of its earlier selling price. Find the profit% after selling the good at a certain price.

A) 24.15%

B) 31.3%

C) 47%

D) 35%

E) 50%

**View Answer**

**Option E**

**Solution:**

$$CP = (2/3) \text{ of SP}$$

$$SP = (100+P) / 100 \text{ of CP}$$

Equating both the above equations,

$$\text{Profit} = 50\%$$

- There are two watches of cost Rs. 800. One is sold at a profit of 16% and the other at a loss of 8%. If there is no loss or no gain in the whole transaction, the cost price of the watch on which the shopkeeper gains is?

A) Rs. 400

B) Rs.740

C) Rs.504

D) Rs.450

E) Rs.6

**View A**

**Option A**

**Solution:**

$$\text{profit} \dots \dots \dots \text{loss}$$

$$+16 \dots \dots \dots -8$$

$$\underline{\quad 0}$$

$$8 \dots \dots \dots 16$$

$$1 : 2$$

Therefore ,

$$\text{price of watch sold at profit} = (1/2) * 800 = \text{Rs. } 400$$

$$\text{price of watch sold at loss} = 2 * 800 = \text{Rs. } 1600$$

- Niel bought 30kg rice at the rate of Rs.9.50/kg and 40kg of rice at the rate of Rs. 8.50/kg and mixed them. She told the mixture at the rate of Rs. 8.90/kg. Find the total profit or loss in the whole transaction.

A) Rs.4 profit

B) Rs.2 loss

C) Rs.2 profit

D) Rs.4 loss

E) None of these

**View Answer**

**Option B**

**Solution:**

$$\text{Total CP} = 30 * 9.50 + 40 * 8.50 = 625$$

$$\text{Total SP} = 8.9(30+40) = 623$$

$$\text{Loss} = \text{Rs. } 2$$

- If a shopkeeper sell a TV at 15% profit and a DVD at 12% loss then he earns Rs. 540 as total profit but if he sells the TV at 12% loss and the DVD at 15% profit then there is no loss or profit. Find the price of the TV and the DVD ?

A) Rs.11,000 and Rs. 2000

B) Rs.15,000 and Rs. 3000

C) Rs.11,000 and Rs. 6000

D) Rs.10,000 and Rs.8000

E) Rs.17,000 and Rs. 4000

**View Answer**

**Option D**

**Solution:**

$$\begin{array}{rcl} \text{TV} & \dots \dots \dots & \text{DVD} \\ \text{CP} = 500 & \dots \dots \dots & 400 \\ \text{SP} = +15\% & \dots \dots \dots & -12\% \\ P = 75 & \dots \dots \dots & L = -48 \\ \text{Total profit} = 75 - 48 = \text{Rs. } 27 \\ 27 * 20 = \text{Rs. } 540 \\ \text{CP of TV} = 500 * 20 = \text{Rs. } 10,000 \\ \text{P of DVD} = 400 * 20 = \text{Rs. } 8000 \end{array}$$

- A cloth merchant uses 120cm scale while buying, instead a meter scale, but uses an 80 cm scale while selling the same cloth. If he offers a discount of 20% on cash payment. Find the profit percent.

A) 40%

B) 35%

C) 20%

D) 15%

E) 30%

**View Answer**

**Option C**

**Solution:**

$$\text{After discount} = (80 * 120)/100 = 96$$

$$\text{Profit} = 96 - 80 = 16$$

$$\text{Therefore , Profit\%} = (16 * 100)/80 = 20\%$$

- An article is marked 50% over its cost price. Two successive discounts of 12% and  $13\frac{1}{2}\%$  are allowed on the marked price of the article. Find the profit or loss percent after selling at discount.

A) 8%  
B) 10%  
C) 13%  
D) 14.18%  
E) 7.4%

### **View Answer**

## Option D

**Solution:**

**Solution:** Let the CP be Rs. 100

$$\begin{aligned} \text{Let the CP be Rs. } 100 \\ \text{SP} &= 150 * (88/100) * (86.5/100) = \text{Rs. } 114.18 \\ \text{Therefore,} \\ &= (14.18/100)*100 = 14.18\% \end{aligned}$$

- A trader marked his goods at such a price that after allowing a discount of  $12\frac{1}{2}\%$  for cash payment, he makes a profit of 20% . What is the marked price of the good which costs Rs. 210 ?

A) Rs.300  
B) Rs.210  
C) Rs.470  
D) Rs. 288  
E) Rs. 200

### **View Answer**

### View Answer

### **Option A Solution:**

$$\text{Required MP} = [210 * (100 + 20)] / (100 \cdot 12.5) = \\ (210 * 120) / 125 =$$

1. If a person reduce his selling price of an article by rs40 then the suggested profit of  $33\frac{1}{3}\%$  convert into loss of 20%. Find the cost price?

  - A) Rs60
  - B) Rs75
  - C) Rs100
  - D) Rs150

### **View Answer**

### Option B

### **Option B Solution:**

C.P.....  
S.P  
33(1/3)%

gain=1/3                    3.....4  
 20%LOSS=  
 1/5                        5.....4  
 Make C.P same & we will get  
 15.....20  
 15.....12  
 20-12 =8  
 8 =40  
 1 =5  
 15 =75

2. The price of an article increase by 20% and a man now get 10kg less, if he also reduce his consumption by 20%, then find how much kg of article he used to purchase in normal price?

  - A) 15kg
  - B) 20kg
  - C) 30kg
  - D) 40kg

### **View Answer**

### Option C

### **Option C Solution:**

$$\begin{array}{rcl}
 \text{Solution:} \\
 . & 100 \\
 80 & 120 \\
 120 - 80 = 40 \\
 40/120 * T = 10 \\
 T = 30\text{kg}
 \end{array}$$

3. A shopkeeper sell his goods at 25% loss but he uses false weight of 30%. Find the loss or profit of shopkeeper in this whole process?

  - A) 50/7% profit
  - B) 50/3% profit
  - C) 50/7% loss
  - D) 50/3% loss

### **View Answer**

## Option A

### Solution:

$$\begin{array}{r} . \quad \quad \quad 1000 \\ 700 \quad \quad \quad 750 \\ 750 - 700 = 50 \\ 50/700 * 100 = 50\% \end{array}$$

4. A shopkeeper sells an article at 25% profit. Had he bought it for 10% loss and sold it for rs16 less, he would have earned 30%



9. By selling 144 hens Mahesh suffer a loss equal to the selling price of 6 hens. Find his loss percent?
- A) 4%  
B) 3%  
C) 9%  
D) 4(1/2)%

**View Answer****Option A****Solution:**

$$\text{loss} = \text{C.P} - \text{S.P}$$

$$\text{S.P of 6 hen} = \text{C.P of 144 hens} - \text{S.P of 144 hens}$$

$$\text{S.P of 150 hens} = \text{C.P of 144 hens}$$

$$6/150 * 100 = 4\% \text{ loss}$$

10. If a man wants to gain 33(1/3)% after allowing a discount of 16(2/3)%. Then find how much percent he has to increase his C.P to make M.P ?
- A) 33(1/3)%  
B) 50%  
C) 60%  
D) 66(2/3)%

**View Answer****Option C****Solution:**

$$\text{gain } 33(1/3)\% = 1/3$$

$$\text{C.P} \dots \text{S.P}$$

$$3 \dots \dots \dots 4$$

$$\text{Discount } 16(2/3)\% = 1/6$$

$$\text{M.P} \dots \text{S.P}$$

$$6 \dots \dots \dots 5$$

Now make S.P same and we will get..

$$\text{C.P} \dots \text{S.P} \dots \text{M.P}$$

$$15 \dots \dots \dots 20 \dots \dots \dots 24$$

$$24-15 = 9$$

$$9/15 * 100 = 60\%$$

1. A shopkeeper sold a T.V set for Rs17,940 with a discount of 12.5% and Gained 5%. If no discount is allowed then what will be his gain percent?
- A) 20%  
B) 25%  
C) 30%

- D) 15%  
E) 18%

**View Answer****Option A****Solution:**

$$\begin{array}{l} \text{MP} \dots \text{SP} \\ \text{8} \dots \dots \dots 7 \\ \text{Gain} - 5\% = 1/20 \\ \text{CP} \dots \text{SP} \\ 20 \dots \dots \dots 21 \\ \text{Make SP same.} \\ \text{CP} \dots \text{SP} \dots \text{MP} \\ 20 \dots \dots \dots 21 \dots \dots \dots 24 \\ \text{MP} - \text{CP} = 4 \\ (4/20)*100 = 20\% \end{array}$$

2. If 8kg of tea price costing Rs56/kg is blended with 32kg of tea of Rs69/kg and 25kg of Rs75/kg and the mixture is sold at 20% profit. Find the selling price (in rupees) of mixture?
- A) 82.64  
B) 83.64  
C) 80  
D) 85  
E) 84.56

**View Answer****Option B****Solution:**

$$(8*56 + 32*69 + 25*75)/ 65 = 69.70$$

$$(69.70/100) * 120 = 83.64$$

3. If the price of an article increased by 25% and his expenditure increases by 15%, a person gets 4kg less article. Find the original quantity of article (in kg).
- A) 50  
B) 54  
C) 45  
D) 40  
E) 48

**View Answer**

**Option A****Solution:**

$$\begin{array}{rcl}
 100 & & \\
 . & 115 & \dots 125 \\
 125 - 115 = 10 & & \\
 10/125 * T = 4 & & \\
 T = 125 * 4/10 = 50 & &
 \end{array}$$

4. An article is sold at 25% profit. Had it been sold at Rs30 less then there would have been a loss of 25%. What was the cost price (in Rupees)?
- A) 75  
B) 45  
C) 60  
D) 90  
E) 72

**View Answer****Option C****Solution:**

$$\begin{array}{rcl}
 \text{Profit} = 25\% = 1/4 & & \\
 \text{CP} \dots \text{SP} & & \\
 4 \dots \dots \dots 5 & & \\
 \text{Loss } 25\% = \text{CP } \text{SP} & & \\
 . & 4 \dots 3 & \\
 \text{In both SPs, difference} = 5-3 = 2 & & \\
 2=30 & & \\
 1=15 & & \\
 4=60 & &
 \end{array}$$

5. Even after reducing the marked price of a fan by Rs64, a shopkeeper makes a profit of 15%. If the cost price of fan is Rs640 what percent of profit would have been made if he had sold the fan at the market price?
- A) 20%  
B) 25%  
C) 30%  
D) 40%  
E) 34%

**View Answer****Option B****Solution:**

$$\text{Profit} = 15\% = 3/20. \text{ So}$$

$$\text{CP} \dots \dots \text{SP}$$

$$20 \dots \dots 23$$

$$640 \dots \dots 736$$

$$\text{M.P} = 736+64 = 800$$

$$\text{Profit \%} = 160/640 * 100 = 25\%$$

6. A man gets a profit of 28% after allowing discount of  $11(1/9)\%$ . Find how much percent the cost price should be increased to make this Mark Price?

- A) 40%  
B) 45%  
C) 44%  
D) 46%  
E) 52%

**View Answer****Option C****Solution:**

$$\begin{array}{rcl}
 \text{Gain} - 28\% & \text{CP} \dots \dots \text{SP} & \\
 . & 100 \dots \dots 128 & \\
 \text{Discount } 11(1/9)\% = 1/9 & & \\
 \text{MP} \dots \dots \text{SP} & & \\
 9 \dots \dots \dots 8 & & \\
 \text{Make SP same} & & \\
 \text{CP} \dots \dots \text{SP} \dots \dots \text{MP} & & \\
 100 \dots \dots 128 \dots \dots 144 & & \\
 \text{MP} - \text{CP} = 44\% & &
 \end{array}$$

7. The sale price of an article including the sales tax is Rs560. The rate of sales tax is  $16(2/3)\%$ . If the shopkeeper has made a profit of  $14(2/7)\%$  then find the cost price (in rupees)?
- A) 420  
B) 450  
C) 500  
D) 550  
E) 480

**View Answer****Option A****Solution:**

$$\text{Sales tax} = 16(2/3)\% = 1/6$$

$$\text{After sales tax} \dots \dots \text{SP}$$

$$. \quad 7 \dots \dots \dots 6$$

$$\text{Gain} = 14(2/7)\% = 1/7$$

$$\text{CP} \dots \dots \text{SP}$$

7.....	8
Make SP same	
CP.....SP.....sales tax	
21.....24.....28	
420.....560	

8. A horse and a cow were sold for Rs49,500 each. The horse was sold at a loss 10% and cow at a gain of 10%. The entire transaction resulted in?
- A) Profit of Rs1000  
 B) Loss of Rs1000  
 C) No loss, no gain  
 D) Profit of Rs2020  
 E) Loss of Rs2000

**View Answer****Option B**

9. A manufacturer of a certain item can sell all items that he can produce at the selling price of Rs50 each. It cost him Rs30 in materials and labour to produce each item and he has overhead expenses of Rs5000 per week in order to operate the plant. The number of units he should produce and sell in order to make a profit of at least Rs3000 per week?
- A) 370  
 B) 350  
 C) 400  
 D) 450  
 E) 430

**View Answer****Option C****Solution:**

$$50x - (30x + 5000) = 3000$$

$$20x = 8000$$

$$x = 400$$

10. A shopkeeper sold his article at cost price but he uses false weight and gives 400gm instead of 600gm. Find his loss or profit percent?
- A) 62%  
 B) 40%  
 C) 50%

- D) 30%  
 E) 55%

**View Answer****Option C****Solution:**

$$(600-400)/400 * 100 = 200/400 * 100 = 50\%$$

1. An article is sold at 33(1/3)% profit. If it had been sold at a profit of 40%, it would have fetched Rs50 more. Find cost price of article?
- A) 700  
 B) 750  
 C) 600  
 D) 650  
 E) 720

**View Answer****Option B****Solution:**

1st 33(1/3)% profit so CP = 3, and SP = 3+1 = 4

2nd 40% = 2/5. So CP = 5, SP = 7

Now CP is same so make CP same

CP.....SP

15.....20

15.....21

20 to 21 is + 1, so 1 = 50 [increase in SP]

So 15 = 750

2. The percentage of loss when an article is sold at Rs60 is same as that of profit, when it is sold at Rs80.
- The above mention profit or loss on the article is?
- A) 14(2/7)%  
 B) 16(2/3)%  
 C) 20%  
 D) 25%  
 E) 30%

**View Answer**

**Option A****Solution:**

$$CP = 60 + 80/2 = 70$$

$$\text{Profit} = 80 - 70 = 10$$

$$\text{Profit \%} = 10/70 * 100 = 14(2/7)\%$$

3. A businessman sells a commodity at 10% profit. If he had bought it 10% less and sold it for rs2 less, then he would have gained 16(2/3)%. What is the cost price of the commodity?
- A) 32
  - B) 48
  - C) 36
  - D) 40
  - E) 30

**View Answer****Option B****Solution:**

$$10\% \text{ profit} = 1/10. \text{ So } CP = 10, SP = 10 + 1 = 11$$

Now make CP 10% less, CP becomes = 9, Now there is 16(2/3)% profit So SP becomes 21/2

Original SP = 11, final = 21/2. Difference is  $\frac{1}{2}$

So  $\frac{1}{2} == 2$  [Rs 2 less]

$$1 == 4$$

$$\text{and } 10 == 40$$

4. A dishonest shopkeeper sells milk at 20% gain and also he add water in the ratio 4:1 in it. What is his total profit?
- A) 50%
  - B) 45%
  - C) 40%
  - D) 44%
  - E) 52%

**View Answer****Option A****Solution:**

In the case of milk & water. The milk amount is consider as 100. Now during the comparison of water with milk, the water amount is taken as profit %.

See here : M W

$$4 : 1$$

100 : 25% profit on selling milk on

CP but he sold it 20% gain

$$\text{So: } 25 + 20 + (25 * 20)/100 = 50\% \text{ total}$$

5. The price of coal is increased by 20%. By what percent a family should decrease its consumption so that expenditure remains same?
- A) 25%
  - B) 14(2/7)%
  - C) 16(2/3)%
  - D) 20%
  - E) 13(1/3)%

**View Answer****Option C****Solution:**

$$\text{increased } 20\% = 1/5$$

Since there is increase, so decrease in consumption will be  $1/(5+1) = 1/6 = 16\frac{2}{3}\%$

In there was decrease, so increase in consumption would have been  $1/(5-1) = 1/4 = 25\%$

6. After selling 12 balls a man suffer a loss equal to cost price of 6 balls. Find loss percent?
- A) 100%
  - B) 50%
  - C) 33(1/3)%
  - D) 40%
  - E) 30%

**View Answer****Option B****Solution:**

$$\text{loss} = CP - SP$$

CP of 6 ball = CP of 12 ball - SP of 12 ball

SP of 12 ball = CP of 6 ball

$$\text{Loss \%} = 6/12 * 100 = 50\%$$

7. A man bought a horse & a carriage for Rs60,000. He sold the horse at 15% profit and the carriage at a loss of 6%. But still he gained of 1% on overall. The cost price of



**Option B****Solution:**

.	Horse 1	Horse 2
CP	$5 \times 23 = 115$	$20 \times 4 = 80$
SP	$4 \times 23 = 92$	$23 \times 4 = 92$ [to make SP same]
CP =	$115 + 80 = 195 = 39,000$	
$\Rightarrow$	$1=200$	
	$115=23000$	
	$80=16000$	

2. The marked price of an article is 60% above the cost price. When marked price is increased by 30% and selling price is increased by 20%, then the profit doubles. What is the original selling price if marked price is Rs 3200?
- A) Rs 2500  
B) Rs 3000  
C) Rs 2000  
D) Rs 4160  
E) Rs 5000

**View Answer****Option A****Solution:**

$CP = 10$ , so  $MP = 16$   
 $MP = 3200$ , so  $CP = 2000$   
Now See from options  
Pick A) 2500  
 $2500 - 2000 = 500$  (profit)  
If 20% of 2500 is increased, then We will get Rs 500 more, means the profit will get doubled as before  
So A) is answer

3. An article passes successfully in the hand of three traders. Each trader sold it further at a gain of 20% of the cost price. If the last trader sold it for Rs 432 then what was the cost price?
- A) Rs 125  
B) Rs 256  
C) Rs 250  
D) Rs 432  
E) Rs 500

**View Answer****Option C****Solution:**

20% = 1/5	
CP	SP
5	6
5	6
5	6
=125	216
*2=250	*2=432
Ans=250	

4. A dishonest dealer professes to sell his goods at 10% profit on Cost Price and also uses a false weight and gives 900 grams instead of 1 kg. Find his total gain.
- A) 11.11%  
B) 22.22%  
C) 21.11%  
D) 21.1%  
E) 23.33%

**View Answer****Option B****Solution:**

900 gms in place of 1000 gm  
So profit% is  $(1000-900)/900 * 100 = 100/9\%$   
10% Profit is on CP also  
So required profit% is  
 $10 + 100/9 + 10*(100/9)/100$  – successive formula

5. A man buys some toffees at 3 in Re. 1 and some at 3 in Rs 2 and sold them at 1 in Re. 1. Find his gain or loss %.
- A) 200% loss  
B) 200% profit  
C) 100% loss  
D) 100% profit  
E) 150 % profit

**View Answer****Option D****Solution:**

.	Quantity	Rupee
CP	3	1
CP	3	2
SP=	1	1 (*3 to make

quantity equal)  
 hence Sp 3      3  
 Total Cp of 6 toffee= 3  
 Sp og 6 toffee=6  
 hence %p=100%

- A) 15
- B) 12
- C) 20
- D) 16
- E) 13

6. A trader wants to increase his cost price in such a way that after giving 25% discount he earns 20% profit. Find how much percent he increases his Cost Price?
- A) 60%
  - B) 45%
  - C) 50%
  - D) 40%
  - E) None of these

**View Answer****Option A****Solution:**

discount=25% = $1/4$   
 MP: SP=4:3  
 Profit=20%= $1/5$   
 CP:SP= 5:6  
 make ratio equal  
 MP:CP:SP=8:5:6  
 $=3/5*100=60\%$

7. On selling 15 balls at Rs 400 there is loss equal to Cost Price of 5 balls. The cost price of a ball is?
- A) 20
  - B) 30
  - C) 40
  - D) 50
  - E) 60

**View Answer****Option C****Solution:**

loss= CP-SP  
 CP of 5=CP of 15- SP of 15  
 CP of 10=SP of 15=400  
 CP of 1 =40

8. By selling 12 oranges for Rs 60 a man losses 25%. The number of oranges he has to sell for Rs 100 so as to gain 25% is?

**View Answer****Option B****Solution:**

Loss=25%= $1/4$  => CP:SP=4:3 ;SP=60  
 hence CP=80  
 Profit=25%= $1/4$  => CP:SP=4:5 ; CP=80  
 hence SP=100  
 for gaining 25% in Rs 100 item he has to sell an item of Rs 80; In Rs 80 12 oranges.

9. A person sold an article at  $16(2/3)\%$  profit on Selling Price. Afterwards when the cost price reduced by 10% then he also reduced the selling price by 10%. His percentage of profit on cost price will be?
- A) 20%
  - B) 21%
  - C) 19%
  - D) 25%
  - E) 26 %

**View Answer****Option A****Solution:**

Profit on SP=  $1/6$   
 SP:CP=6:5 multiply by 10 for easy calculation= 60:50  
 $60-6 : 50-5=54:45$   
 $=(54-45)/45*100=20\%$

10. A shopkeeper allows 2% discount and gives 1 article free on purchase of 6 articles. He earns 40% profit during the transaction. By what percent above the cost price he marked his good.
- A) 50%
  - B) 60%
  - C) 42 ( $6/7\%$ )
  - D) 66 ( $2/3\%$ )
  - E) None of these

[View Answer](#)**Option D****Solution:**

$$\text{Discount} = 2\% = 1/50 \quad \text{MP:SP} = 50:49$$

$$\text{Profit} = 40\% = 2/5 \Rightarrow \text{CP:SP} = 5:7$$

$$\text{MP:SP:CP} = 50:49:35$$

This 35 is the CP of (6+1) hence the CP for 6 will be 30

$$(50-30)/30 * 100 = 66 (2/3)\%$$

1. By selling 20 articles, a person gains CP of 5 articles. Find the profit% incurred by him.
  - A) 33 1/3%
  - B) 25%
  - C) 20%
  - D) 16 2/3%
  - E) None of these

[View Answer](#)**Option B****Solution:**

$$\text{Profit} = \text{SP} - \text{CP}$$

CP of 5 articles = SP of 20 article – CP of 20 articles

So CP of 25 articles = SP of 20 articles

$$\text{Profit\%} = 5/20 * 100 = 25\%$$

2. A person wants to sell his goods at 20% profit after allowing a discount of 16 2/3% on marked price. How much % above the cost price should he mark his article?
  - A) 20%
  - B) 36 2/3%
  - C) 34 5/6%
  - D) 44%
  - E) 38%

[View Answer](#)**Option D****Solution:**

Use formula:

$$\text{MP} = (100+p\%)/(100-d\%) * \text{CP}$$

OR

$$\text{Profit\%} = 20\% = 1/5 \quad (\text{profit} = 1, \text{CP} = 5)$$

$$\text{SP} = \text{CP} + \text{P} = 5 + 1 = 6 \dots \dots \dots (1)$$

$$\text{Discount\%} = 16 \frac{2}{3}\% = 50/3\% = 1/6$$

$$(\text{discount} = 1, \text{MP} = 6)$$

$$\text{Mp} - \text{discount} = \text{SP}$$

$$6 - 1 = 5 \dots \dots \dots (2)$$

Make SP equal in both equations (1) and (2)

Multiply (1) by 5 and (2) by 6

$$\text{so CP : SP : MP} = 25 : 30 : 36$$

$$\text{So see CP and MP, required \%} = (36 - 25)/25 * 100 = 44\%$$

3. Three successive discounts of 20%, 25% and 16 2/3% is equivalent to
  - A) 50% profit
  - B) 56 2/3% profit
  - C) 40% loss
  - D) 125/3% loss
  - E) 25/6% profit

[View Answer](#)**Option A****Solution:**

Use successive formula:

$$a + b + a*b/100$$

$$\text{So } -20 - 25 + 20*25/100 = -40\%$$

$$\text{Next: } -40 - 50/3 + (50)(50/3)/100 = -50\%$$

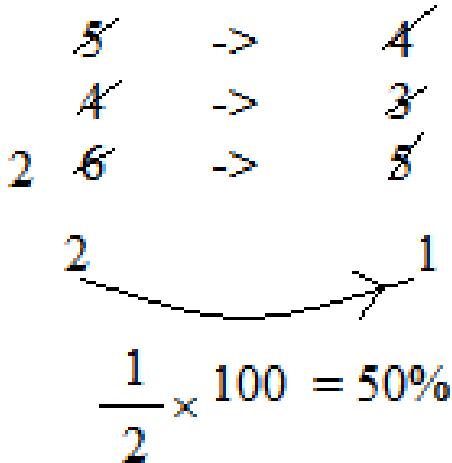
OR

$$20\% = 1/5 \quad 5 \rightarrow 4$$

$$25\% = 1/4 \quad 4 \rightarrow 3$$

$$16 \frac{2}{3}\% = 1/6 \quad 6 \rightarrow 5$$

Cancel out like this:



4. After selling a table worth Rs 12000 at 20% loss, a trader buys a TV with the same money. Next he sold the TV at 20% profit. What is his profit/loss in the whole transaction?
- A) Rs 480 loss
  - B) Rs 450 loss
  - C) Rs 480 gain
  - D) No profit no loss
  - E) Rs 420 gain

[View Answer](#)

#### Option A

**Solution:**

$$\begin{aligned} 12000 - 2400 &= 9600 \\ 9600 + 1920 &= 11520 \text{ (20% profit on 9600)} \\ \text{So } 12000 - 11520 &= 480 \text{ Rs loss} \end{aligned}$$

5. A sold a watch to B at 10% loss. B sold it to C at 11.11% loss and C again sold it to A at 12.5% profit. How much profit/loss % is incurred by A?
- A) 10% profit
  - B) 12% profit
  - C) 10% loss
  - D) 15% loss
  - E) No profit no loss

[View Answer](#)

#### Option E

**Solution:**

A to B to C  
 A to B 10% loss,  $10\% = 1/0$ . So SP for A =  $10-1 = 9$   
 B to C 11.11% loss,  $11.11\% = 1/9$ , so SP for B =  $9-1 = 8$   
 C to A 12.5% profit,  $12.5\% = 1/8$ , so SP for C or CP for A =  $1+8 = 9$   
 A first sold to B at 9, and after he got from C at 9, so no profit no loss

6. After selling an article at some price, a trader gain 20% on the selling price. Find his profit% on the cost price.
- A) 50%
  - B) 33 1/3%
  - C) 16 2/3%
  - D) 25%
  - E) 15 1/5%

[View Answer](#)

#### Option D

**Solution:**

Profit = 20% on SP  
 $20\% = 1/5$ , ( $1 - \text{profit}, 5 - \text{SP}$ )  
 CP = SP - Profit  
 $4 = 5 - 1$   
 so profit% on CP =  $\text{profit}/\text{CP} * 100 = 1/4 * 100 = 25\%$

7. A man bought some toffees at the rate of 3 toffees per Re. and same number at the rate of 2 toffees per Re. He mixes them and sold 3 toffees for Rs 2. Find his profit/loss% in the whole transaction.
- A) 20% loss
  - B) 20% profit
  - C) 60% loss
  - D) 60% profit
  - E) None of these

[View Answer](#)

#### Option D

**Solution:**

Let he buys 6 toffees

Case 1: 3 toffees per Re so 6 toffees for Rs 2

Case 2: 2 toffees per Re so 6 toffees for Rs 3

Total CP of 12 toffees =  $2+3 = 5$

Now he sold at 3 for Rs 2. So 12 toffees for Rs 8

Now CP = Rs 5, SP = Rs 8, so profit% =  $3/5 * 100 = 60\%$  profit

8. A shopkeeper sold his articles at cost price. But he used false weights and gives 800 gm instead of 1 kg. Find his profit%.
  - A)  $16 \frac{2}{3}\%$
  - B) 20%
  - C) 10%
  - D)  $33 \frac{1}{3}\%$
  - E) None of these

[View Answer](#)

#### Option E

**Solution:**

CP of 1000 gm = SP of 800 gm

So gain% =  $(1000-800)/800 * 100 = 25\%$

9. A trader sold his goods at 20% profit and along with this he used weights of 800 gm instead of 1 kg. Find his total profit%.
  - A) 40%
  - B) 45%
  - C) 50%
  - D) 55%
  - E) 60%

[View Answer](#)

#### Option C

**Solution:**

Profit is 20%. So

$1000 \text{ gm} + 20\% \text{ of } 1000 \text{ gm} = 1200 \text{ gm}$

so CP of 1200 gm = SP of 800 gm

$\text{Sp profit\%} = (1200-800)/800 * 100 = 50\%$

10. A loss of 20% is made by selling an article. Had it been sold for Rs 240 more, there would have been a profit of 10%. What would be the selling price of the article if it is sold at 25% profit?
  - A) Rs 950
  - B) Rs 1020
  - C) Rs 975
  - D) Rs 1000
  - E) Rs 1075

[View Answer](#)

#### Option D

**Solution:**

$\text{Loss} = 20\% = 1/5$  (loss = 1, CP = 5)

$\text{CP} - \text{Loss} = \text{SP}$

$5 - 1 = 4 \dots\dots\dots(1)$

$\text{Profit\%} = 10\% = 1/10$  (Profit = 1, CP = Rs 10)

$\text{CP} + \text{P} = \text{SP}$

$10 + 1 = 11 \dots\dots\dots(2)$

Make CP same in both equations (1) and (2) by multiplying (1) by 2. SO

$10 - 2 = 8$

And  $10 + 1 = 11$

So first, SP was 8, now is 11

So  $(11-8) \rightarrow 240$

$3 \rightarrow 240$

So  $10 (\text{CP}) \rightarrow 240/3 * 10 = 800$

So after 25% profit SP  $\rightarrow 1000$

# 120+ SIMPLE INTEREST & COMPOUND INTEREST QUESTIONS WITH SOLUTION

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1. Out of a sum of Rs 850, a part was lent at 6% SI and the other at 12% SI. If the interest on the first part after 2 years is equal to the interest on the second part after 4 years, then the second sum is  
 A) Rs350  
 B) Rs280  
 C) Rs170  
 D) Rs220  
 E) None

**View Answer****Option C****Solution:**

Let the first part be  $x$  then second part be  $850-x$ .

$$(x \cdot 6 \cdot 2)/100 = [(850-x) \cdot 12 \cdot 4]/100$$

$$x = 850 \cdot 4 - 4x$$

$$5x = 850 \cdot 4$$

$$x = 680$$

Then second part  $850-680=\text{Rs } 170$ .

**View Answer****Option A****Solution:**

Let  $x$  = equal installment at the end of one year( rate% annually) .

Now 1st year,

$$P = 550,$$

$$\text{Interest} = (550 \cdot 20 \cdot 1)/100 = 110.$$

Now, at the beginning of 2nd year,

$$P = 550 + 110 - x$$

Interest at the end of 2nd year,

$$= [(660 - x) \cdot 20 \cdot 1]/100 = 132 - x/5.$$

Hence, total installment,

$$2x = 550 + 110 + 132 - x/5$$

$$2x + x/5 = 792$$

$$x = 360.$$

3. A certain sum of money amounts to Rs.1300 in 2 years and to Rs. 1525 in 3.5 years. Find the sum and the rate of interest.  
 A) Rs850, 10%  
 B) Rs900, 12%  
 C) Rs800, 13%  
 D) Rs1000,15%  
 E) None

**View Answer****Option D****Solution:**

$$1525-1300= 225 \text{ for } 1.5 \text{ yrs } (3.5-2) \\ \text{so for one yr } 225/1.5= 150 \\ \text{then for 2 yrs interest is } 150+150=300 \\ \text{Then principal } 1300-300=1000. \\ \text{Now } 150/1000 \cdot 100= 15\%$$

4. The simple interest on a certain sum of money for 3 years at 8% per annum is half the compound interest on Rs. 4000 for 2 years at 10% per annum. The sum placed on simple interest is:  
 A) Rs1800  
 B) Rs1750  
 C) Rs2000  
 D) Rs1655  
 E) None

**View Answer****Option B****Solution:**

$$CI = [4000 * (1 + 10/100)^2 - 4000] \\ = 4000 * 11/10 * 11/10 - 4000 \\ = Rs840.$$

$$\text{Then Sum in SI } 420 \text{ (ie } 840/2\text{)} = \\ (P \cdot 3 \cdot 8)/100 \\ = Rs1750.$$

5. A Woman took a loan of Rs. 15,000 to purchase a mobile. She promised to make the payment after three years. The company charges CI at 20% per annum for the same. But, suddenly the company announces the rate of interest as 25% per annum for the last one year of the loan period. What extra amount she has to pay due to the announcement of new rate of interest?  
 A) Rs1230  
 B) Rs1135

- C) Rs1080  
D) Rs1100  
E) None

[View Answer](#)

**Option C**

**Solution:**

$$15,000 * (1+20/100)^2 [ (1+25/100) - (1+20/100)] \\ 15,000 * 120/100 * 120/100 \\ [125/100 - 120/100] \\ 15000 * 144/100 (5/100) \\ 150 * 144 * 5 / 100 = 1080$$

6. The ratio of the amount for two years under compound interest annually and for one year under simple interest is 6:5. When the rate of interest is same, then the value of rate of interest is:  
 A) 20%  
 B) 15%  
 C) 18%  
 D) 22%  
 E) None

[View Answer](#)

**OptionA**

**Solution:**

$$[P(1+r/100)^2]/[P(1+r*1/100)] = 6/5 \\ 1+r/100 = 6/5 \\ r/100 = 1/5 \\ r = 20\%$$

7. An automobile financier claims to be lending money at simple interest, but he includes the interest every six months for calculating the principal. If he is charging an interest of 10%, the effective rate of interest becomes:  
 A) 9.5%  
 B) 8%  
 C) 10.25%  
 D) 10%  
 E) None

[View Answer](#)

**Option C**

**Solution:**

Let the sum be Rs. 100. Then,  
 S.I. for first 6 months =  $100 * 10 * 1/100 * 2$   
 = Rs5

$$\text{S.I. for last 6 months} = 105 * 10 * 1/100 * 2$$

$$= \text{Rs}5.25$$

So, amount at the end of 1 year = Rs. (100 + 5 + 5.25) = Rs. 110.25

$$\text{Effective rate} = (110.25 - 100) = 10.25\%$$

8. A person borrows Rs. 3000 for 2 years at 5% p.a. simple interest. He immediately lends it to another person at  $6 \frac{1}{4}\%$  p.a for 2 years. Find his gain in the transaction per year.  
 A) Rs42  
 B) Rs39.25  
 C) Rs35  
 D) Rs37.5  
 E) None

[View Answer](#)

**Option D**

**Solution:**

$$\text{Gain in 2 yrs} = [(3000 * 25/4 * 2 / 100) - (3000 * 2 * 5 / 100)] \\ 375 - 300 = 75. \\ \text{Gain in 1 yr} = 75 / 2 = 37.5$$

9. If the difference between CI and SI earned on a certain amount at 20% pa at the end of 3 years is Rs.640, find out the principal.  
 A) Rs5500  
 B) Rs6500  
 C) Rs4500  
 D) Rs5000  
 E) None

[View Answer](#)

**Option D**

**Solution:**

$$\text{SI-CI for 3 yrs} = P r^2 / 100^3 * (300 + r) \\ 640 = P * 20^2 / 100^3 * 320 \\ 640 = (P * 20 * 20 / 100 * 100 * 100) * 320 \\ P = \text{Rs}5000$$

10. If the simple interest on a certain sum of money is  $\frac{4}{25}$  of the sum and the rate per cent equals the number years, then the rate of interest per annum is:  
 A) 4%  
 B) 5%  
 C) 8%  
 D) 10%  
 E) None

**View Answer****Option A****Solution:**

Let the principal be Rs x.

Then the SI = $4/25x$

Rate of interest = Time

$$r = (100 * 4/25x) / x * r$$

$$r^2 = 400/25$$

$$r = 20/5 = 4\%$$

- A sum of Rs. 10,000 is borrowed at 8% per annum compounded annually. If the amount is to be paid in three equal installments, the annual installment will be
  - A) Rs 3520.25
  - B) Rs 3880.335
  - C) Rs 4200.15
  - D) Rs 4530.225
  - E) None

**View Answer****Option B****Solution:**

Let each installment be x,

$$\begin{aligned} 10000 &= x/(1+8/100) + x/(1+8/100)^2 + \\ &x/(1+8/100)^3 \\ 10000 &= x \{ 25/27 + (25/27)^2 + (25/27)^3 \} \\ &= x * 25/27(1 + 25/27 + 625/729) \\ &= 25x/27(2029/729) \\ x &= 3880.335 \end{aligned}$$

- A sum was put at simple interest at a certain rate for 5 years. Had it been put at 2% higher rate, it would have fetched Rs. 450 more. Find the sum?
  - A) Rs 4500
  - B) Rs 3200
  - C) Rs 3800
  - D) Rs 4200
  - E) None

**View Answer****Option B****Solution:**

$$P * (r+2) * 5/100 - P * r * 5/100 = 450$$

$$5P(r+2-r)/100 = 450$$

$$P = \text{Rs} 4500.$$

- Stephen borrowed some money at 6% for the first 4 years, 8% for the next 6 years and 11% for the period beyond 2 years. If the total interest paid by him at the end of eleven years is Rs 5640, how much money did he borrow?
  - A) Rs 10000
  - B) Rs 6000
  - C) Rs 8000
  - D) Rs 9000
  - E) None

**View Answer****Option B****Solution:**

Let the sum be P. Then,

$$(P * 6 * 4/100) + (P * 8 * 6/100) +$$

$$(P * 11 * 2/100) = 5640.$$

$$24P/100 + 48P/100 + 22P/100 = 5640.$$

$$94P/100 = 5640 \Rightarrow P = 6000.$$

- A financier lend money at simple interest, but he includes the interest every six months for calculating the principal. If he is changing an interest of 10%, the effective rate of interest becomes?
  - A) 10%
  - B) 11.5%
  - C) 10.25%
  - D) 12%
  - E) None

**View Answer****Option C****Solution:**

Let the sum be Rs. 100. Then,

$$\text{S.I. for first 6 months} = (100 * 10 * 1/2) / 100 = \text{Rs.} 5$$

Next 6 months 10% of 5 is Rs 2 is added.

$$\text{S.I. for last 6 months} = \text{Rs.} [(102 * 10 * 1/2) / 100] = \text{Rs.} 5.25$$

So, amount at the end of 1 year = Rs. (100

- $+ 5 + 5.25) = \text{Rs. } 110.25$   
 $R = (110.25 - 100) = 10.25\%$
5. Ragav purchases a coat for Rs.2400 cash or for Rs.1000 cash down payments and two monthly installments of Rs.800 each. Find the rate of interest.  
A) 80%  
B) 100%  
C) 110%  
D) 120%  
E) None
- View Answer**
- Option D**  
**Solution:**  
Amount as a principal for 2 month = 2400  
 $- 1000 = 1400$   
At the rate of  $r\%$  per annum after 2 months, Rs.1400 will amount to Rs 1400 +  $(1400 * r * 2 / 100 * 12)$   
Total amount for 2 installments at the end of second month  
 $\text{Rs}800 + (800 + (800 * r * 1 / 100 * 12))$   
Then  $1400 + 2800 * r / 1200 = 1600 + 800 * r / 1200$   
 $R = 120\%$
6. The difference between simple interest and compound interest on Rs. 1200 for one year at 10% per annum reckoned half-yearly is:  
A) Rs.3  
B) Rs.3.5  
C) Rs.4  
D) Rs.5  
E) None
- View Answer**
- Option A**  
**Solution:**  
 $SI = 1200 * 10 * 1 / 100 = 120$   
 $CI \text{ half yearly} = \{1200 * (1 + 5 / 100)^2 - 1200\} = 123$   
Difference =  $123 - 120 = 3$
7. A borrows 5000 at simple interest. At the end of 3 years, he again borrows 3000 and finally pays 2340 as interest after 6 years from the time he made the first borrowing. Find the rate of interest per annum.  
A) 4%  
B) 5.5%  
C) 6%  
D) 4.5%  
E) None
- View Answer**
- Option C**  
**Solution:**  
Let  $r$  be the rate of interest  
 $5000 * 3x / 100 + 8000 * 3x / 100 = 2340$   
 $150x + 240x = 2340$   
 $X = 6$
8. Arav fixes the rate of interest 5% per annum for first 3 years and for the next 4 years 6 percent per annum and for the period beyond 7 years, 7 percent per annum. If Mr. Kumar lent out Rs.2500 for 11 years, find the total interest earned by him?  
A) 1650  
B) 1565  
C) 1840  
D) 1675  
E) None
- View Answer**
- Option D**  
**Solution:**  
5% for 3 years = 15%  
6% for 4 years = 24%  
7.5% for 4 years = 28%  
67% of 2500 = 1675
9. A certain sum of money amounts to rupees 2900 at 4% per annum in 4 years. In how many years will it amount to rupees 5000 at the same rate?  
A) 30  
B) 25

- C) 22  
D) 18  
E) None

[View Answer](#)

**Option B**

**Solution:**

$$\begin{aligned}2900 &= p + p * (4/100) * 4, p = 2500 \\5000 &= 2500 + 2500 * (4/100) * t \\5000 &= 2500 + 100t \\t &= 25\end{aligned}$$

10. Rs.100 doubled in 5 years when compounded annually. How many more years will it take to get another Rs.200 compound interest?
- A) 5  
B) 6  
C) 8  
D) 10  
E) None

[View Answer](#)

**Option A**

**Solution:**

Rs.100 invested in compound interest becomes Rs.200 in 5 years.  
The amount will double again in another 5 years.  
i.e., the amount will become Rs.400 in another 5 years.  
So, to earn another Rs.200 interest, it will take another 5 years.

1. Mosses invested Rs. 20,000 in a scheme at simple interest @ 15% per annum. After three years he withdrew the principal amount plus interest and invested the entire amount in another scheme for two years, which earned him compound interest @ 12% per annum. What would be the total interest earned by Mosses at the end of 5 years?  
A) Rs. 16377.6  
B) Rs. 10152.3

- C) Rs. 11012.14  
D) Rs. 12500  
E) None

[View Answer](#)

**Option A**

**Solution:**

$$\begin{aligned}SI &= 20,000 * 15 * 3 / 100 = 9000 \\Amount &= 20,000 + 9000 = 29,000 \\Now CI &= 29,000 * (1 + 12 / 100)^2 = 29,000 * 28 / 25 * 28 / 25 = 36,377.6 \\A - P &= 36,377.6 - 29,000 = 7377.6 \\After 5 yrs & 7377.6 + 9000 = 16,377.6\end{aligned}$$

2. A certain sum is invested for certain time. It amounts to Rs. 600 at 10% per annum. But when invested at 5% per annum, it amounts to Rs. 400. Find the time.
- A) 40 years  
B) 75 years  
C) 50 years  
D) 60 years  
E) None

[View Answer](#)

**Option A**

**Solution:**

$$\begin{aligned}600 - P &= P * 10 * t / 100 \rightarrow 1 \rightarrow 6000 - 10P = Pt \\400 - P &= P * 5 * t / 100 \rightarrow 2 \rightarrow 8000 - 20P = Pt \\Equate 1 and 2 & 6000 - 10P = 8000 - 20P \Rightarrow P = 200 \\Substitute P in 1 then & 400 = 200 * 5 * t / 100 \Rightarrow 40yrs.\end{aligned}$$

3. A lent Rs. 8000 to B for 2 years and Rs 6000 to C for 4 years on simple interest at the same rate of interest and received Rs 1840 in all from both of them as interest. The rate of interest per annum is
- A) 4.6%  
B) 8.4%  
C) 6.3%  
D) 10%  
E) None

[View Answer](#)

**Option A****Solution:**

rate of interest be  $r\%$

Then

$$8000*2*R/100 + 6000*4*R/100 = 1840$$

$$160R + 240R = 1840$$

$$400R = 1840$$

$$R = 4.6 \text{ % p.a}$$

4. A Man lends Rs. 1540 for five years and Rs. 1800 for four years. If he gets Rs. 1788 as interest on both amounts, what is the rate of interest ?
- A) 10%
  - B) 12%
  - C) 15%
  - D) 8%
  - E) None

**View Answer**

**Option B****Solution:**

Let the interest rate be  $r\%$

We know that,

$$S.I = PTR/100$$

$$\Rightarrow (1540 \times 5 \times r)/100 + (1800 \times 4 \times r)/100$$

$$= 1788$$

$$\Rightarrow r = 178800/14900 = 12\%$$

5. If a sum of Rs.8000 lended for 20% per annum at compound interest then the sum of the amount will be Rs.13824 in
- A) 2 years
  - B) 1 year
  - C) 3 years
  - D) 4 years
  - E) None

**View Answer**

**Option C****Solution:**

$P = \text{Rs.}8000, R = 20\% \text{ per annum}$

$$P(1 + R/100)^n$$

$$\text{Rs.}13824 = 8000 * (1 + 20/100)^n$$

$$(12/10)^3 = (12/10)^n$$

$$n=3$$

6. What will be the amount if sum of Rs.10,00,000 is invested at compound interest for 3 years with rate of interest 11%, 12% and 13% respectively?
- A) Rs.14,04,816
  - B) Rs.12,14,816
  - C) Rs.11,35,816
  - D) Rs.16,00,816
  - E) None

**View Answer**

**Option A****Solution:**

Here  $P=10,00,000$   $R_1=11$   $R_2=12$   $R_3=13$

Amount after 3 yrs

$$= p(1+R_1/100)(1+R_2/100)(1+R_3/100)$$

$$10,00,000 * (1+11/100)(1+12/100)(1+13/100) = 14,04,816.$$

7. Two persons P and Q borrowed Rs.40,000/- and Rs.60,000/- respectively from R at different rates of simple interest. The interest payable by P at the end of the first four years and that payable by Q at the end of the first three years is the same. If the total interest payable by P and Q for one year is Rs.8,400/- then at what rate did Q borrow the money from R?
- A) 8
  - B) 10
  - C) 12
  - D) 9
  - E) None

**View Answer**

**Option B****Solution:**

$$40000 * 4 * R_1/100 = 60000 * 3 * R_2/100$$

$$R_1 = 9/8 R_2$$

1yr interest

$$40000 * 1 * R_1/100 + 60000 * 1 * R_2/100 = 8400$$

$$4R_2 + 6R_2 = 84$$

Then substitute  $4(9/8R_2) + 6R_2 = 84 \Rightarrow$

$$R_2 = 8$$

8. In what time will Rs 390625 amount to Rs 456976 at 4% compound interest?
- A) 4

- B) 5
  - C) 8
  - D) 6
  - E) None

## **View Answer**

## Option A

**Solution:**

$$\begin{aligned}
 P(1+r/100)^t &= A \\
 390625(1+4/100)^t &= 456976 \\
 (1+1/25)^t &= 456956 / 390625 \\
 (26/25)^t &= (26/25)^4 \\
 T &= 4
 \end{aligned}$$

9. The difference between C.I. and S.I. on a certain sum of money at 10% per annum for 3 years is Rs. 620. Find the principal if it is known that the interest is compounded annually.

A) Rs. 2,00,000  
B) Rs. 20,000  
C) Rs. 10,000  
D) Rs. 1,00,000  
E) None

## **View Answer**

## Option B

**Solution:**

$$\begin{aligned} \text{diff between CI and SI} &= P * r^2 / 100^3 * \\ &(300+r) \\ 620 &= P * 100 / 100^3 * 310 \\ P &= \text{Rs}20,000 \end{aligned}$$

10. Shanthi borrowed Rs.75,000.00 from two banks at compound interest compound annually. One bank charges interest at the rate of 15% per year and the other bank at 20% per year. If at the end of the year, shanthi paid Rs.12,000.00 as the total interest to the two banks, how much did she borrow from the second bank?

  - A) 18000
  - B) 20000
  - C) 15000
  - D) 19000
  - E) None

## **View Answer**

### **Option C**

### Solution:

$P*(1+r/100)=A$   
 $75000*(100+r)/100=(75000+12000)87000$   
 $100+r=116 \Rightarrow r=16\%$   
 15 ..... 20  
 ..... 16  
 Ratio 4:1  
 Total 5 == 75000  
 1 ? == Rs15000.

1. Reena borrowed a sum of RS. 6000 from Raveena at the rate of 14% for 2 years. She then added some more money to the borrowed sum and lent it to Sameera at the rate of 18% of simple interest for the same time. If Reena gained Rs. 650 in the whole transaction , then what sum did he lend to Sameera?

A) Rs.6427.12  
B) Rs.8015.41  
C) Rs.6472.22  
D) Rs.7541.2  
E) Rs.6758.2

**View Answer**

## Option C

**Solution:**

Let the money lent to Sameera be Rs.x  
 Therefore ,  
 $x*(18/100)*2 - 6000*(14/100)*2 = 650$   
 $\Rightarrow x = 6472.22$

2. The rate of interest on a sum of money is 4% per annum for the first 2 years , 6% per annum for the period next 4 years, 8% per annum for the period beyond 6 years.If the simple interest accrued by the sum for a total period of 9 years is Rs. 1680 ,what is the sum ?

  - A) Rs.3000
  - B) Rs.5000
  - C) Rs.4700
  - D) Rs.5500
  - E) Rs.7580

[View Answer](#)**Option A****Solution:**

SI at the rate of 4% for 2 years ,  
 $= (P * 4 * 2) / 100 = 8P/100$

SI at the rate of 6% for 4 years ,  
 $(P * 6 * 4) / 100 = 24P/100$

SI for the next 3 years

$SI = (P * 8 * 3) / 100 = 24P/100$

Total SI =  $8P/100 + 24P/100 + 24P/100$   
 $\Rightarrow P = (1680 * 100) / 56 = 3000$

3. The simple interest on a certain sum for 2 years at the rate of 5% per annum is Rs.160. What would be the difference of compound interest and simple interest for the same period and at the same rate of interest?
- A) Rs.2  
 B) Rs.10  
 C) Rs.6  
 D) Rs.4  
 E) Rs.8

[View Answer](#)**Option D****Solution:**

For 2 years

$SI = 5 * 2 = 10\%$  of the sum

$CI = 5 + 5 + (5 * 5) / 100 = 10.25\%$  of the sum  
 required diff. =  $10.25 - 10 = 0.25\%$  of the sum

Therefore ,

the required diff. =  $(160 / 10) * 0.25 = \text{Rs.}4$

4. What is the difference between CI and SI ,if sum is Rs.10,000 for 3 years at the rate of 3% ?
- A) Rs.42  
 B) Rs.30  
 C) Rs.27.27  
 D) Rs.35  
 E) Rs.25

[View Answer](#)**Option C****Solution:**

Difference =  $[\text{sum} * r^2 (300 + r)] / (100)^3$   
 $= [10000 * 3 * 3 (300+3)] / (100)^3 = 27.27$

5. Arjun lent out a sum of money at compound interest rate of 30% per annum for 2 years .It would fetch Rs. 500 more if interest is compounded half -yearly.
- A) Rs.8000  
 B) Rs.8041.12  
 C) Rs.8145  
 D) Rs.8457.2  
 E) Rs.8333.33

[View Answer](#)**Option E****Solution:**

$P[1 + (15/100)]^4 - P[1 + (30/100)]^2 = 500$   
 $\Rightarrow P = 8333.33$

6. At what rate of % per annum will Rs.2304 amount to Rs. 2500 in 2 years compounded annually.
- A) 5.2%  
 B) 4.16%  
 C) 3.45%  
 D) 4.5%  
 E) 3.2%

[View Answer](#)**Option B****Solution:**

Shortcut::

$2304 == 2500$

$576 == 625$

Take square roots

$24 == 25$

diff. = 1

$= (1/24) * 100 = 4.16\%$

7. The ratio of the amount for 2 years under compound interest annually and for 1 year under simple interest is 5:4 when the rate of interest is same then find the rate of

interest?

- A) 20%
- B) 25%
- C) 60%
- D) 30%
- E) 40%

## **View Answer**

### **Option B Solution:**

$$\text{rate} / 100 = 5/4 - 1$$
$$\text{rate} = 25\%$$

8. Anu borrowed Rs.800 at rate of interest 10% . He repaid Rs.400 at the end of first year.What is the amount required to repay at the end of second year to discharge his loan which was calculated at compound interest?

A) Rs.650  
B) Rs.528  
C) Rs.490  
D) Rs.780  
E) Rs.472

## **View Answer**

### **Option B Solution:**

$$\text{Amount paid at the end of 1 year} = 800[1 + 10/100] = 880$$

Amount left as principal for the second year =  $880 - 400 = 480$

Amount to be paid after 2<sup>nd</sup> year = 480 [1 + 10/100] = Rs.528

9. Sahil has lent some money to Anita at 6% per annum and Sheetal at 8% per annum. At the end of the year he has gained the overall interest at 7% per annum. In what ratio has he lent the money to Anita and Sheetal?

A) 3:8  
B) 1:2  
C) 2:5  
D) 1:1

E) 4:5

## **View Answer**

**Option D  
Solution:**

$$\begin{array}{r} 6 \dots \dots \dots 8 \\ \dots \dots \dots 7 \\ 1 \quad : \quad 1 \end{array}$$

10. What is the ratio of the simple interest earned by certain amount for 4 years and 8 years at the same rate of interest?

  - A) 3:2
  - B) 2:1
  - C) 1:2
  - D) 4:3
  - E) 3:5

### **View Answer**

### **Option C Solution:**

$$\text{ratio} = 4\text{PR} / 8\text{PR} = 1 : 2$$

1. A man with a sum of Rs3903 wants to deposit in the bank account of his two sons so that both will get equal money after 5yrs and 7yrs respectively at the rate of 4% compounded annually. Find the part of amount deposited into the account of first son?

A) 2028  
B) 2400  
C) 3000  
D) 1250

### **View Answer**

## **Option A**

### **Some Extra**

$$\begin{aligned} A(1+4/100)^5 &= B(1+4/100)^7 \\ A/B &= (1+4/100)^2 = 676/625 \\ 676/625 &= 3903 \\ 1 &= 3 \\ 676 &= 2028 \end{aligned}$$

2. The ratio of difference between compounded interest and simple interest for 3years to the difference between C.I and S.I for 2years is 31 : 10. What is rate of percent per annum ?  
 A) 20%  
 B) 25%  
 C)  $16\frac{2}{3}\%$   
 D) 10%

**View Answer****Option D****Some Extra:**

Principal

A A A

. B B

. B

. C

Difference between C.I & S.I for 3yrs =  
3B+CDifference between C.I & S.I for 2yrs = B  
Now ....  $(3B+C)/B = 31/10$  $B = 10$  $C = 1$  $Rate = C/B = 1/10 = 10\%$ 

3. A certain sum is lent for 3yrs at 10% compound interest p.a. if the C.I for the 3rd year is 242. Then what will be the S.I for 4yrs?  
 A) 400  
 B) 800  
 C) 600  
 D) 1000

**View Answer****Option B****Some Extra:** $R - 10\% = 1/10 \dots (10)^3 = 1000$ , let  
 $P=1000$ 

.	1000
100.....	100.....
.	10.....
.	10
.	1

 $C.I$  for 3rd yr = 121 $121 = 242$  $1 = 2$ 

$$P = 1000 = 2000$$

$$S.I = 4*10 = 40\% \text{ of } 2000 = \text{rs}800$$

4. What will be the difference between compound interest on sum of 3000 for  $1(1/2)$  yrs. When the interest is compounded annually and half yearly respectively if rate is 20% compounded annually?  
 A) 30  
 B) 33  
 C) 36  
 D) 39

**View Answer****Option B****Some Extra:**Compound Annually ..... C.I = 960  
Compound half yearly ..... C.I = 993  
Difference = 993 - 960 = 33

5. If a principal becomes triple in 4yrs at C.I then find in how many years it will be nine fold?  
 A) 8yrs  
 B) 12yrs  
 C) 10yrs  
 D) 16yrs

**View Answer****Option A****Some Extra:**In C.I 'P' increases like.....  
 $P \dots 3P \dots 9P$   
 $\dots \quad 4 \quad \quad 4$   
 $4+4 = 8 \text{yrs}$ 

6. If the difference between C.I and S.I at 20% rate of interest 'is 480. Then find the principal amount?  
 A) 3600  
 B) 3750  
 C) 4000  
 D) 4750

**View Answer**

**Option B****Some Extra:**

$$20\% = 1/5 \dots \dots \dots (5)^T = (5)^3 =$$

125=principal

In 3yrs difference will always come

$$3A + 1 = (3*5) + 1 = 16$$

$$16 = 480$$

$$1 = 30$$

$$125 = 3750$$

7. A sum of Rs13,360 was borrowed at  $8(3/4)\%$  p.a C.I and paid back in 2yrs in two equal installments. What was the amount of each installment?
- A) 5769  
B) 7569  
C) 7009  
D) 7500

**View Answer****Option B****Some Extra:**

$$8(3/4) = 7/80$$

$$80/87 * 167/87 * \text{installments} = 13360$$

Installments = Rs7569

8. If a sum of Rs16 becomes Rs81 in 4yrs then find the rate of interest at compound interest?
- A)  $33(1/3)\%$   
B) 40%  
C) 50%  
D)  $66(2/3)\%$

**View Answer****Option C****Some Extra:**

$$4\sqrt{16} : 4\sqrt{81}$$

$$2 : 3$$

$$3 - 2 = 1$$

$$1/2 * 100 = 50\%$$

9. Find the C.I on Rs20,000 at 15% rate of interest in 3yrs?
- A) 10400.5  
B) 10500.5  
C) 10517.5

D) 10417.5

**View Answer****Option D****Some Extra:**

$$\dots \dots \dots 20000$$

$$SI \text{ for 1 year} = 20000 * 15/100 = \text{Rs } 3000$$

$$3000 \dots \dots \dots 3000 \dots \dots \dots$$

$$\dots \dots \dots 3000$$

$$\dots \dots \dots 450 \dots \dots \dots$$

$$\dots \dots \dots 45 \dots \dots \dots$$

$$\dots \dots \dots 0 \dots \dots \dots$$

$$\dots \dots \dots 67 \dots \dots \dots$$

$$\dots \dots \dots .5 \dots \dots \dots$$

$$= 9000 + 1350 + 67.5 = 10417.5$$

10. S.I on a sum for 3yrs at any rate of interest is 450 while C.I on the same sum at the same rate for 2yrs is 315. Find the sum and rate percent?
- A) 5%, 1500  
B) 10%, 1500  
C) 5%, 2000  
D) 10%, 2000

**View Answer****Option B****Some Extra:**

$$\dots \dots \dots P$$

$$1\text{st yr} 150 \dots \dots \dots 2\text{nd yr} 150$$

$$\dots \dots \dots 15$$

$$15 = 10\% \text{ of } 150$$

$$\text{So R} = 10\%$$

$$P = 1500$$

1. Find the compound interest on Rs36,000 at a rate in which Rs216 becomes Rs343 in 3years and the time is 2years?
- A) Rs12000  
B) Rs12500  
C) Rs13000  
D) Rs13500  
E) Rs14200

[View Answer](#)**Option C****Solution:**

first we find the rate

$$3\sqrt[3]{216} : 3\sqrt[3]{343}$$

$$6 : 7$$

$$(+)1$$

$$1/6 * 100 = 16(2/3) \%$$

$$\text{Now } R = 16(2/3) \% = 1/6$$

$$6 \dots \dots \dots 7$$

$$6 \dots \dots \dots 7$$

$$36 \ 49$$

$$(13) = 13000$$

2. If a principal becomes triple in 3years on C.I. then find in how many years it will be 27 fold?
- A) 39years
  - B) 9years
  - C) 18years
  - D) 27years
  - E) 10years

[View Answer](#)**Option B****Solution:**

in C.I principal increase like

$$1 \dots 3 \dots 9 \dots 27$$

$$\dots 3 \dots 3 \dots 3$$

$$= 9 \text{years}$$

3. If a principal becomes amount of rs14500 at  $14(2/7)\%$  rate of interest in 3years at simple interest. Find the S.I on principal?
- A) Rs4250
  - B) Rs4300
  - C) Rs4400
  - D) Rs4350
  - E) Rs4270

[View Answer](#)**Option D****Solution:**

$$R = 14(2/7)\% = 1/7$$

S.I remains same in all years so...

$$(P)7 + 1+1+1= 10(A)$$

$$10-7 = 3S.I$$

$$10 = 14500$$

$$1 = 1450$$

$$3 = 4350$$

4. If the difference between C.I and S.I is rs256 at 20% rate of interest in 3years. Find the amount on C.I?
- A) Rs4320
  - B) Rs2500
  - C) Rs3456
  - D) Rs3200
  - E) Rs3478

[View Answer](#)**Option C****Solution:**

$$S.I \text{ in 3years} = 20 * 3 = 60\%$$

$$C.I \text{ in 3years} = 5 \dots \dots \dots 6$$

$$\dots \dots \dots 5 \dots \dots \dots 6$$

$$\dots \dots \dots 125 \dots \dots \dots 216$$

$$\dots \dots \dots (91)$$

$$91/125 * 100 = 72.8$$

$$\text{Difference} = 72.8 - 60 = 12.8$$

$$12.8\% = 256$$

$$100\% = 2000$$

$$\text{Now } P = 2000$$

$$\text{Means in C.I} \dots 125 = 2000$$

$$1 = 16$$

$$216 = 3456$$

5. A sum becomes 8000 in 3years and 10000 in 6years at C.I. Find the sum ?
- A) Rs6400
  - B) Rs6500
  - C) Rs6000
  - D) Rs7000
  - E) Rs7200

[View Answer](#)**Option A****Solution:**

$$x : y = y : z$$

$$x : 8000 = 8000 : 10000$$

$$x = 6400$$

6. Find the C.I on rs9000 at 15% rate of interest for 3years?

- A) Rs4645.87
  - B) Rs4680.87
  - C) Rs4685.87
  - D) Rs4687.87
  - E) Rs4356.77

## **View Answer**

### **Option D**

### Solution:

15% of 9000 = 1350
1350.....1350.....1350
.
202.5.....202.5
.
202.5
.
30.37
= 4687.87

7. Find the compound interest on 18000 at 20% rate of interest in  $1\frac{1}{2}$  years, if compounded half yearly ?

  - A) Rs5958
  - B) Rs4916
  - C) Rs5780
  - D) Rs3500
  - E) Rs6724

## **View Answer**

## Option A

**Solution:**

in half yearly we make rate half and time double.

So R =  $20/2 = 10\%$   
 T =  $3/2 * 2 = 3$  years  
 So 10% of 18000 = 1800  
 1800.....1800.....  
 1800  
 . 180.....18  
 0 . 180  
 . 18  
 .  
 =  $5400 + 540 + 18 = 5958$

8. Find the difference between S.I and C.I on Rs 5000 if rate of interest for first year is 10% and 2nd year is 15% and 3rd year is 20%?

A) Rs300  
B) Rs320  
C) Rs330

- D) Rs340  
E) Rs360

## **View Answer**

### **Option D**

### **Solution:**

$$\begin{aligned}
 S.I &= 10+15+20 = 45\% \\
 C.I .. & 10.....11 \\
 . & 20.....23 \\
 . & 5.....6 \\
 . & 1000.....1518 \\
 . & (518) \\
 & = 518/1000*100 = 51.8 \% \\
 & = \text{difference} = 51.8 - 45 = 6.8\% \\
 & = 6.8\% \text{ of } 5000 = 340
 \end{aligned}$$

9. If the principal become 6 fold on S.I in 10 years then find in how many years it will be 12 fold?

  - A) 24years
  - B) 22years
  - C) 12years
  - D) 20years
  - E) 25years

## **View Answer**

### **Option B**

### Solution:

P ..... 6P  
 $6P - P = 5P$  interest  
 $5P = 10$  years  
 $P = 2$  years  
 $11P = 22$  years

10. If the compound interest on a sum at 25% rate of interest is Rs900 then find the S.I of 3years at same rate?

  - A) Rs1000
  - B) Rs1100
  - C) Rs1300
  - D) Rs1200
  - E) Rs1500

## **View Answer**

### **Option D**

### Solution:

$S.I = 25 * 3 = 75\%$   
 $C.I = 25\% = 1/4$   
 4.....5  
 4.....5  
 16.....25  
 $25 - 16 = 9$   
 $9 = 900$   
 $16 = 1600 = \text{principal}$   
 So 75% of 1600 = 1200

- If the difference between Simple Interest and Compound Interest at 10% p.a rate of interest for 3 years is Rs. 930, then find the Sum.  
 A) Rs 25,000  
 B) Rs 30,000  
 C) Rs 35,000  
 D) Rs 40,000  
 E) None of these

**View Answer**

#### Option B

**Solution:**

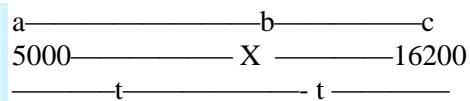
On SI, Rate for 3 years =  $3 * 10 = 30\%$   
 On CI rate for 3 years –  $10\% = 1/10$   
 10—11  
 10—11  
 10—11  
 1000—1331  
 $=1331 - 1000 / 1000 * 100 = 33.1\%$   
 Difference =  $33.1 - 30 = 3.1\%$   
 $3.1\% = 930$   
 $100\% = \text{Rs } 30,000$

- On a certain rate of interest a sum of Rs 5000 becomes Rs 16,200 in certain years at compound interest. In half of the time given, this sum will become?  
 A) Rs 10,000  
 B) Rs 5,600  
 C) Rs 9,000  
 D) Cannot be determined  
 E) None of these

**View Answer**

#### Option C

**Solution:**


 $a-----b-----c$   
 $5000 ----- X ----- 16200$   
 $t ----- t -----$

As we have to calculate the sum for half time, both time period is same, and hence  
 $a:b = b:c$   
 $5000:x = x:16200$   
 $x = \text{Rs } 9000$

- If a certain sum becomes double in 3 years at certain rate of interest at C.I. Then in how many years it will become 16 times?  
 A) 12 years  
 B) 24 years  
 C) 8 years  
 D) Cannot be determined  
 E) None of the above

**View Answer**

#### Option A

**Solution:**

In C.I P increases like  
 $P ----- 2P ----- 4P ----- 8P ----- 16P$   
 $\text{---3 yrs---3 yrs---3 yrs---3 yrs---}$   
 total =  $3+3+3+3=12$  years

- Ram invests two sum of money A and B at 10% p.a. and 20% p.a respectively at CI for 2 years. If the total interest on both the sum is Rs 5350 then find the sum invested in A if the total sum of A and B was Rs 20,000?  
 A) Rs 5,000  
 B) Rs 10,000  
 C) Rs 12,000  
 D) Rs 15,000  
 E) None of these

**View Answer**

#### Option D

**Solution:**

At 10% CI in 2 years = 21 %  
 At 20% Ci in 2 years = 44%  
 and 5350 is  $107/4$  % of 20000, by using allegation

A

B

21  
107/4  
3  
 $A=3/4 \times 20000 = \text{Rs } 15000$

44

1

5. The compound interest on a certain sum for 2 years at a certain rate of interest is Rs 1025 and Simple Interest on the same sum, same time and same rate of interest is Rs 1,000. Then find the C.I for same sum in 3 years.
- A) Rs 1575.25  
B) Rs 1576.25  
C) Rs 1576.75  
D) Rs 1575.75  
E) None of these

**View Answer****Option B****Solution:**

$\text{SI for 2 years} = \text{Rs } 1000 \Rightarrow \text{SI 1 year} = \text{Rs } 500$   
 In the second years Rs 25 is added in CI (1025-1000) which is 5% of 500  
 Hence  $R=5\%$   
 $5\% = 500$   
 $100\% = 10000$   
 $\text{sum} = 10000$   
 $\text{CI for 3 years} = \text{RS } 1576.25$

6. A sum becomes triple in 6 years at S.I. The same sum will become 19 times in how many years?
- A) 50 years  
B) 48 years  
C) 54 years  
D) 57 years  
E) None of these

**View Answer****Option C****Solution:**

$\text{SI} = A - P \Rightarrow A = 3P$  as sum triples  
 $\text{SI} = 3P - P = 2P$  in 6 years  
 In 19 times  $\text{SI} = 18P$  — 54 years (2:6 hence  $18 = 54$ )

7. A sum of Rs 343 becomes 512 in 3 years at C.I. Find the rate of interest.
- A) 14 (2/7) %  
B) 12.5 %  
C) 8 (2/3) %  
D) 16 (2/3) %  
E) None of these

**View Answer****Option A****Solution:**

$\text{Sum} = 343; \text{Amount} = 512$   
 as many year, put that many root i.e  
 $\text{cuberoot}(343); \text{cuberoot}(512)$   
 $7:8$   
 $\text{rate} = (8-7)/7 * 100 = 14 (2/7)\%$

8. Find the C.I on Rs 20,000 at 10% rate of interest in 2 years if compounded half yearly. (Approximately)
- A) Rs 4210  
B) Rs 4310  
C) Rs 4410  
D) Rs 4510  
E) None of these

**View Answer****Option B****Solution:**

In half yearly  $\Rightarrow$  Time-double; Rate= half Rate=5% ; Time=4 years; Sum = Rs 20,000

1 years	—	2 years	—	3
years	—	4 years	—	
1000	—	1000	—	1000
—	1000	—	50	50
—	50	—	50	50
—	50	—	2.5	2.5
—	50	—	2.5	2.5
—	2.5	—	2.5	2.5
—	2.5	—	2.5	2.5

\_\_\_\_\_—0.125

Total = Rs 4000 +300 + 10+0.125= Rs  
4310.125

9. A sum of Rs 6,000 was taken as a loan. This is to be repaid in two equal annual installments. If the rate of interest is 20% compounded annually then find the value of each installment.
- A) Rs 4400  
B) Rs 2220  
C) Rs 4320  
D) Rs 4420  
E) None of these

**View Answer**

**Option C**

**Solution:**

$$\text{Formula} = x/(1+R/100)^T$$

$$x/ (1+20/100)^1 + x/(1+20/100)^2 = 6600$$

solve and get  $x=4320$

10. If the ratio of difference between CI and SI for 3 years and 2 years is 31:10, then find the Rate of Interest.
- A) 11.11%  
B) 10%  
C) 20%  
D) 25%  
E) None of these

**View Answer**

**Option B**

**Solution:**

$$\text{Sum} = A$$

$$\text{Interest} = B$$

$$A \longrightarrow A \longrightarrow A$$

$$\longrightarrow B \longrightarrow B$$

$$\longrightarrow B$$

$$\longrightarrow C$$

$$\text{CI for 3 years} = 3A + 3B + C$$

$$\text{SI for 3 years} = 3A$$

$$\text{Diff} = 3B + C$$

$$\text{CI for 2 years} = 2A + B$$

$$\text{SI for 2 years} = 2A$$

$$\text{diff} = B$$

$$\text{ratio} = (3B + C)/B = 31/10$$

$$B = 10; C = 1$$

$$\text{Rate} = C/B = 1/10 = 10\%$$

1. If a sum amounts to Rs 6000 in 2 years on CI. What will it become after 4 years on C.I, if the principal amount was Rs 4500?
- A) Rs 7500  
B) Rs 8000  
C) Rs 8500  
D) Rs 9000  
E) None of these

**View Answer**

**Option B**

**Solution:**

$$a \longrightarrow b \longrightarrow c$$

$$\therefore 2 \text{ years} \longrightarrow 2 \text{ years}$$

$$a:b = b:c$$

$$4500:6000 = 6000:x$$

$$x = 8000$$

2. If Compound Interest on certain sum for 2 years is 352 at some rate of interest and Simple Interest on same rate for 3 years is 480, then find the sum.
- A) Rs 800  
B) Rs 1000  
C) Rs 700  
D) Rs 900  
E) None of these

**View Answer**

**Option A**

**Solution:**

$$\text{SI for 1 years} = 480/3 = 160 \text{ (as SI is same for every year)}$$

$$\text{SI for 2 years} = 320$$

$$\text{CI for } w \text{ year} = 352; \text{ diff} = 32$$

$$32 = 20\% \text{ of } 160$$

hence  $r = 20\%$

$$20\% = 160$$

$$100\% = 800$$

3. If a sum of RS 2744000 becomes Rs 3176523 in three years on Compound Interest then find the rate of interest.
- A) 10%  
B) 5%

- C) 8%  
D) 20%  
E) None of these

**View Answer**

**Option B**

**Solution:**

Find the cube root of both numbers. Cube root-> 3 years  
 cube root(2744000): cube root(3176523)  
 140:147  
 rate=(147-140)/140\*100==5

4. If the difference between Simple Interest and Compound Interest at 20% rate of Interest in 3 years is 5120, then find the sum.  
 A) Rs 40,000  
 B) Rs 50,000  
 C) Rs 60,000  
 D) Rs 30,000  
 E) None of these

**View Answer**

**Option A**

**Solution:**

On SI interest=20% \*3 =60%

On CI interest =20% = 1/5

5—6

5—6

5—6

125—216

(216-125)/125\*100=72.8%

diff=72.8-60=12.8%

12.8%=5120

100%=40,000

5. Find the Compound Interest on Rs 30,000, if the rate of interest for first year is 5% second year is 10% and on the third year is 20%  
 A) 11580  
 B) 11500  
 C) 10500  
 D) 10000

- E) None of these

**View Answer**

**Option A**

**Solution:**

$$\begin{array}{r}
 \text{1}^{\text{st}} \text{ year } 5\% = 1/20 \quad 20 \quad 21 \\
 \text{2}^{\text{nd}} \text{ year } 10\% = 1/10 \quad 10 \quad 11 \\
 \text{3}^{\text{rd}} \text{ year } 20\% = 1/5 \quad 5 \quad 6 \\
 \hline
 & & = 1000 \quad 1386 \\
 (1386-1000)/1000 * 200 & = 38.6\% \\
 38.6\% \text{ of } 30000 & = 11580
 \end{array}$$

6. What is the difference between Simple Interest and Compound Interest on Rs 70,000 at 20% rate of interest in one and a half year if Compound Interest is compounded half yearly.  
 A) Rs 2070  
 B) Rs 2160  
 C) Rs 2170  
 D) Rs 2060  
 E) None of these

**View Answer**

**Option C**

**Solution:**

SI on 1 (1/2) year= 20\*1.5=30%

SI on 1 (1/2) years of compounded half yearly make rate half yearly and time double

r=10%=1/10 ; t=3 years

10—11

10—11

10—11

1000—1331

r=331/1000\*100=33.1

33.1% of 70,000 = 2170

7. Divide Rs 20,816 between A and B so that A's share at the end of 7 years is equal to B's share at the end of 9 years with compound interest being 4% p.a  
 A) 10716, 10100  
 B) 10616, 10200  
 C) 10816, 10000  
 D) 10800, 10016  
 E) None of these

**View Answer****Option C****Solution:**

second part +  $(4+4+16/100)$  of second part  
= first part  
second part + 8.16% of second part = first part  
first part/second part =  $108.16/100 = 10816/10000$

8. Find the simple interest and compound interest of Rs 15000 at 20% rate of interest after 3 years.  
A) 9000, 11000  
B) 8000, 11920  
C) 9000, 10920  
D) 6000, 9000  
E) None of these

**View Answer****Option C****Solution:**

$$SI = 20 \times 3 = 60\% = 9000$$

CI =

$$\begin{array}{r} 3000 \\ - 600 \\ \hline 600 \\ - 600 \\ \hline 120 \end{array}$$

$$\Rightarrow 9000 + 1800 + 120 = 10920$$

9. A man borrows Rs 8000 at 10% compounded rate of interest. At the end of each year he pays back Rs 2200. How much amount should he pay at the end of the third year to clear all his dues?  
A) Rs 5500  
B) Rs 5466  
C) Rs 5666  
D) Rs 5566  
E) None of these

**View Answer****Option D****Solution:**

first year =  $8000 + 800 = 8800 - 2200 = 6600$   
second year =  $6600 + 660 = 7260 - 2200 = 5060$   
third year =  $5060 + 506 = 5566$

10. What sum of money at compound interest will amount to Rs 32000 in 3 years at the rate of interest 20% in first years, 16  $(2/3)\%$  in second year and 14  $(2/7)\%$  in third year.  
A) Rs 18,000  
B) Rs 20,000  
C) Rs 22,000  
D) Rs 25,000  
E) None of these

**View Answer****Option B****Solution:**

$$\begin{array}{r} 1^{\text{st}} \text{ year} = 20\% = 1/5 = 5 \\ 6 \\ 2^{\text{nd}} \text{ year} = 16(2/3) = 1/6 = 6 \\ 3^{\text{rd}} \text{ year} = 14(2/7) = 1/7 = 7 \\ \hline = 210 \end{array}$$

336 on simplifying = 5:8

$$r = (8-5)/5 * 100 = 60\%$$

$$160\% = 32000$$

$$100\% = 20000$$

**The compound interest on a certain sum for 2 years is Rs. 786 and S.I. is Rs. 750. If the sum is invested such that the S.I. is Rs. 1296 and the number of years is equal to the rate per cent per annum, Find the rate of interest?**

- A. 4%  
B. 5%  
C. 6%  
D. 8%  
E. 2%

**Answer & Explanation**

Answer – C.6%

**Explanation :**

$$CI \text{ for 2 years} = \text{Rs. 786}$$

$$SI \text{ for 2 years} = \text{Rs. 750}$$

$$36/360 * 100 = 10\%$$

$$P \text{ for first year} = 3600$$

$$P * x * x / 100 = 1296$$

$$x = 6\%$$

**Hari took an educational loan from a nationalized bank for his 2 years course of MBA. He took the loan of Rs.5 lakh such that he would be charged at 7% p.a. at CI during**

his course and at 9% CI after the completion of the course. He returned half of the amount which he had to be paid on the completion of his studies and remaining after 2 years. What is the total amount returned by Hari?

- A.Rs. 626255
- B.Rs. 626277
- C.Rs. 616266
- D.Rs. 626288
- E.None of these

#### Answer & Explanation

Answer – D.Rs. 626288

**Explanation :**

$$5,00,000 * (1.07)^2 = 572450$$

Returned amount = 286225

$$\text{After two years} = 286225 * (1.09)^2 = 340063$$

$$\text{Total amount} = 286225 + 340063 = 626288$$

**Rs.20,000 was invested by Mahesh in a FD @ 10% pa at CI. However every year he has to pay 20% tax on the CI. How much money does Mahesh have after 3 years?**

- A. 25694
- B. 25594
- C. 25394
- D. 25194
- E.None of these

#### Answer & Explanation

Answer – D. 25194

**Explanation :**

$$(20000 * (1.08)^3) = 25194$$

**Leela takes a loan of Rs. 8400 at 10% p.a. compounded annually which is to be repaid in two equal annual installments. One at the end of one year and the other at the end of the second year. The value of each installment is?**

- A. 4200
- B. 4140
- C. 4840
- D. 5640
- E. None of these

#### Answer & Explanation

Answer – C. 4840

**Explanation :**

$$8400 = x * (210/121) \Rightarrow 4840$$

**A sum of money lent at compound interest for 2 years at 20% per annum would fetch Rs.723 more, if the interest was payable half**

**yearly than if it was payable annually. The sum is \_\_\_\_\_**

- A.Rs. 20000
- B.Rs. 15000
- C.Rs. 30000
- D.Rs. 45000
- E.None of these

#### Answer & Explanation

Answer – C.Rs. 30000

**Explanation :**

$$\text{sum} - \text{Rs.x}$$

$$\text{C.I. compounded half yearly} = (4641/10000)x$$

$$\text{C.I. compounded annually} = (11/25)x$$

$$(4641/10000)x - (11/25)x = 723$$

$$x = 30000$$

**A sum of Rs.7140 is to be divided between Anita and Bala who are respectively 18 and 19 yr old, in such a way that if their shares will be invested at 4% per annum at compound interest, they will receive equal amounts on attaining the age of 21 year. The present share of Anita is**

- A. 4225
- B. 4352
- C. 3500
- D. 4000
- E. None of these

#### Answer & Explanation

Answer – C. 3500

**Explanation :**

Amount got by Anita after 3 yr = Amount got by Bala after 2 yr

$$x * (26/25)^3 = (7140 - x) * (26/25)$$

$$26/25 = 7140 - x / x$$

$$x = 3500$$

**Suresh borrows Rs.6375 to be paid back with compound interest at the rate of 4 % pa by the end of 2 year in two equal yearly installments. How much will each installment will be?**

- A.3840
- B.3380
- C.4800
- D.Data inadequate
- E.None of these

#### Answer & Explanation

Answer – B.3380

**Explanation :**

$$25x/26 + 625/676x = 6375 \\ x = (6375 * 676)/1275 = 3380$$

- A sum of Rs. 8400 was taken as loan. This is to be paid in two equal annual installments. If the rate of interest be 20% compounded annually, then the value of each installment is
- A. 5400
  - B. 5700
  - C. 5100
  - D. 5200
  - E. None of these

#### Answer & Explanation

Answer – A. 5400

#### Explanation :

Let value of each installment be X.  
 $X/(1 + 20/100) + X/(1 + 20/100)^2 = 8400$   
 $\Rightarrow X(5/6 + 25/36) = 8400$   
 $\Rightarrow X(56/36) = 8400$   
 $X = 5400$

- During the first year the population of a village is increased by 5% and the second year it is diminished by 5%. At the end of the second year its population was 31500. What was the population at the beginning of the first year?

- A. 35500
- B. 31578
- C. 33500
- D. 330
- E. Non

#### Answer & Explanation

Answer – B. 31578

#### Explanation :

$$x * 105/100 * 95/100 = 31500 \\ x = 31500 * 100/105 * 100/95 \\ D = 31578$$

- If Rs. 7200 amounts to Rs.10368 at compound interest in a certain time , then Rs. 7200 amounts to what in half of the time?

- A. 8640
- B. 8600
- C. 8800
- D. 8520
- E. None of these

#### Answer & Explanation

Answer – A. 8640

#### Explanation :

Let rate = R% and time = n year

$$\text{Then, } 10368 = 7200(1+R/100)n \\ \Rightarrow (1+R/100)n = 10368/7200 = 1.44 \\ \therefore (1 + R/100)n/2 = \sqrt{1.44} = 1.2 \\ \therefore \text{Required amount for } n/2 \text{ yr} \\ = 7200(1+ R/100)n/2 \\ = 7200 \times 1.2 = \text{Rs. 8640}$$

- A part of 70000 is lent out at 10% annum. The rest of the amount is lent out at 5% per annum after one year. The ratio of interest after 3 years from the time when first amount was lent out is 1:2. Find the second part that was lent out at 5%.

- A.40000
- B.50000
- C.60000
- D.48000
- E.55000

#### Answer & Explanation

Answer – C.60000

#### Explanation :

$$10*3*x/5*2*y = 1/2 \\ x/y = 1/6 \\ 6/7*70000 = 60000$$

- There is 50% increase in an amount in 5 years at simple interest. What will be the compound interest of Rs. 12,000 after 3 years at the same rate?

- .Rs. 2255
- .Rs. 2792
- C.Rs. 3580
- D.Rs. 3972
- E.None of these

#### Answer & Explanation

Answer – D.Rs. 3972

#### Explanation :

In S.I,  
 $P=100, I=50, T=5 \text{ yrs}$   
 $R = 50*100/100*5 = 10\%$   
In C.I,  
 $P = 12000, T=3 \text{ yrs}, R= 10\%$   
 $C.I = [12000*(1 + 10/100)^3 - 1] C.I = 3972.$

- Karthik lends a certain amount to Vignesh on simple interest for two years at 20%. Vignesh gives this entire amount to Kamal on compound interest for two years at the same rate annually. Find the percentage earning of Vignesh at the end of two years on the entire

**amount.**

- A.3%
- B. $3(1/7)\%$
- C.4%
- D. $5(6/7)\%$
- E.None of these

**Answer & Explanation**

Answer – C.4%

**Explanation :**

$$\begin{aligned} SI &= 20 * 2 = 40\% \\ CI &= 20 + 20 + (400/100) = 44\% \\ \text{Diff} &= 44 - 40 = 4\% \end{aligned}$$

A man borrows 3000 rupees at 10% compound interest. At the end every year he pays rupees 1000 back. How much amount should he pay at the end of the fourth Year to clear all his debt?

- A.Rs. 680.5
- B.Rs. 651.3
- C.Rs. 751.3
- D.Rs. 790.3
- E.None of these

**Answer & Explanation**

Answer – C.Rs. 751.3

**Explanation :**

$$\begin{aligned} \text{After one year amount} &= 3000 * 110/100 = 3300 \\ \text{He pays 1000 back, so remaining} &= 3300 - 1000 = 2300 \\ \text{After two year amount} &= 2300 * 110/100 = 2530 \\ \text{He pays 1000 back, so remaining} &= 2530 - 1000 = 1530 \\ \text{After three year amount} &= 1530 * 110/100 = 1683 \\ \text{He pays 1000 back, so remaining} &= 1683 - 1000 = 683 \\ \text{After fourth year} &= 683 * 110/100 = 751.3 \end{aligned}$$

Rahul saves an amount of 800 every year and then lent that amount at an interest of 10 percent compounded annually. Find the amount after 3 years.

- A.Rs. 1822.8
- B.Rs. 2252
- C.Rs. 2550.50
- D.Rs. 2912.8
- E.None of these

**Answer & Explanation**

Answer – D.Rs. 2912.8

**Explanation :**

$$\begin{aligned} 800 * (11/10)^3 &= 1064.8 \\ 800 * (11/10)^2 &= 968 \end{aligned}$$

$$800 * (11/10) = 880$$

Total amount = 2912.8

Find the compound interest at the rate of 8% for 3 years on that principal which in 3 years at the rate of 10% per annum gives 300 as simple interest.

- A.180.515
- B.220.25
- C.259.712
- D.289.624
- E.312.51

**Answer & Explanation**

Answer – C.259.712

**Explanation :**

$$\begin{aligned} SI &= 300 \\ \text{Per yr} &= 100 \\ \text{Rate} &= 10\% \\ C.I &= 1000 * (108/100)^3 - 1000 \\ C.I &= 259.712 \end{aligned}$$

The difference between the total simple interest and the total compound interest compounded annually at the same rate of interest on a sum of money at the end of two years is Rs. 450. What is definitely the rate of interest per cent per annum?

- A.8400
- B.4800
- C.7800

Data inadequate  
 None of these

**Answer & Explanation**

Answer – D.Data inadequate

**Explanation :**

$$\begin{aligned} \text{Difference} &= P r^2 / (100)^2 \\ &= (450 \times 100 \times 100) / (P \times r^2) \\ P &\text{ is not given} \end{aligned}$$

The CI on Rs.6000 for 3 years at 8% for first year, 7% for second year, 6% for the third year will be

- A.Rs.1430
- B.Rs.1530
- C.Rs.1250
- D.Rs.1350
- E.None of these

**Answer & Explanation**

Answer – D.Rs.1350

**Explanation :**

$$A = 6000 * 108/100 * 107/100 * 106/100$$

$$\begin{aligned}
 &= 6000 * 1.08 * 1.07 * 1.06 \\
 &= 7349.616 = 7350 \\
 \text{CI} &= 7350 - 6000 = 1350
 \end{aligned}$$

**Venkat and Vidhya have to clear their respective loans by paying 2 equal annual instalments of Rs.30000 each. Venkat pays at 10% pa of SI and Vidhyapays at 10% CI pa. What is the difference in their payments ?**

- A.200
- B.300
- C.400
- D.500
- E.None of these

#### Answer & Explanation

Answer – B.300

**Explanation :**

$$\begin{aligned}
 D &= [(30,000 * 110/100 * 110/100) - 30,000] - \\
 &30,000 * 10 * 2/100 \\
 &= [36300 - 30000] - 6000 \\
 &= 6300 - 6000 \\
 D &= 300
 \end{aligned}$$

**The difference between interest received by Vivek and Vimal is Rs.405 on Rs.4500 for 3 years. What is the difference in rate of interest ?**

- A.1.5%
- B.2%
- C.3%
- D.2.7%
- E.None

#### Answer & Explanation

Answer – C.3%

**Explanation :**

$$\begin{aligned}
 4500 * 3/100(R_1 - R_2) &= 405 \\
 R_1 - R_2 &= 405 * 100 / 13500 = 3\%
 \end{aligned}$$

**A sum of rupees 3903 is divided between P and Q such that the share of P at the end of 8 years is equal to the share of Q after 10 years. Find the share of P if rate of interest is 4% compounded annually.**

- a) 2012
- b) 2029
- c) 2028
- d) 2081
- e) None of these

#### Answer & Explanation

Answer –c) 2028

**Explanation :**

$$P * (1 + 4/100)^8 = (3903 - P) * (1 + 4/100)^{10}$$

**A man borrows 2000 rupees at 10% compound interest. At the end every year he pays rupees 1000 back. How much amount should he pay at the end of the third Year to clear all his debt?**

- a) 252
- b) 352
- c) 452
- d) 552
- e) None of these

#### Answer & Explanation

Answer – b) 352

**Explanation :**

$$\begin{aligned}
 \text{After one year amount} &= 2000 * 110/100 = 2200 \\
 \text{He pays 1000 back, so remaining} &= 2200 - 1000 \\
 &= 1200 \\
 \text{After second year} &= 1200 * 110/100 = 1320 \\
 \text{He pays 1000 back, so remaining} &= 1320 - 1000 \\
 &= 320 \\
 \text{After third year} &= 320 * 110/100 = 352
 \end{aligned}$$

**A sum of rupees 3200 is compounded annually at the rate of 10 paisa per rupee per annum. Find the compound interest payable after 2 years.**

- a) 200
- b) 842
- c) 672
- d) 832
- e) None of these

#### Answer & Explanation

Answer – c) 672

**Explanation :**

Rate of interest is 10 paisa per rupee per annum. So for 100 rupees it is 1000 paise i.e. 10 percent  
Now,  $CI = 3200(1+10/100)^2 - 3200 = 672$

**What sum of money will amount to rupees 1124.76 in 3 years, if the rate of interest is 5% for the first year, 4% for the second year and 3% for the third year?**

- a) 1500
- b) 1200
- c) 1000
- d) 1900
- e) None of these

#### Answer & Explanation

**Answer – c) 1000**

**Explanation :**

$$1124.76 = P * (105/100) * (104/100) * (103/100)$$

**Riya saves an amount of 500 every year and then lent that amount at an interest of 10 percent compounded annually. Find the amount after 3 years.**

- a) 1820.5
- b) 1840.5
- c) 1920.5
- d) 1940.5
- e) None of these

**Answer & Explanation**

**Answer – a) 1820.5**

**Explanation :**

$$\text{Total amount} = 500 * (1+10/100)^3 + 500 * (1+10/100)^2 + 500 * (1+10/100) = 1820.5$$

**A sum of 3000 becomes 3600 in 3 years at 15 percent per annum. What will be the sum at the same rate after 9 years?**

- a) 5124
- b) 5184
- c) 5186
- d) 5192
- e) None of these

**Answer & Explanation**

**Answer – b) 5184**

**Explanation :**

$$3600 = 3000 * (1+15/100)^3$$

$$(1+15/100)^3 = 6/5$$

$$\text{Amount} = 3000 * [(1+15/100)^3]^3$$

$$\text{Amount} = 3000 * (6/5)^3 = 5184$$

**On a certain sum of money, after 2 years the simple interest and compound interest obtained are Rs 400 and Rs 600 respectively. What is the sum of money invested?**

- a) 100
- b) 200
- c) 300
- d) 400
- e) None of these

**Answer & Explanation**

**Answer – b) 200**

**Explanation :**

$$400 = P * (R/100)^2$$

$$600 = P * (1+R/100)^2 - P$$

Solve both equations to get P

**A sum of money becomes Rs 35,280 after 2 years and Rs 37,044 after 3 years when lent on compound interest. Find the principal amount.**

- a) 2800
- b) 3000
- c) 3200
- d) 4000
- e) None of these

**Answer & Explanation**

**Answer – c) 3200**

**Explanation :**

$$37044 = P * (1+r/100)^3$$

$$35280 = P * (1+r/100)^2$$

Divide both equations to get the value of r and then substitute in any equation to get P

**A sum of money is lent for 2 years at 10% p.a. compound interest. It yields Rs 8.81 more when compounded semi-annually than compounded annually. What is the sum lent?**

- a) 1000
- b) 1200
- c) 1400
- d) 1600
- e) None of these

**Answer & Explanation**

**Answer – d) 1600**

**Explanation :**

$$8.81 = P * (1+5/100)^4 - P * (1+10/100)^2$$

**A sum of rupees 4420 is to be divided between raj and parth in such a way that after 5 years and 7 years respectively the amount they get is equal. The rate of interest is 10 percent. Find the share of raj and parth**

- a) 2000, 2420
- b) 2420, 2000
- c) 2480, 2420
- d) 2210, 2210
- e) None of these

**Answer & Explanation**

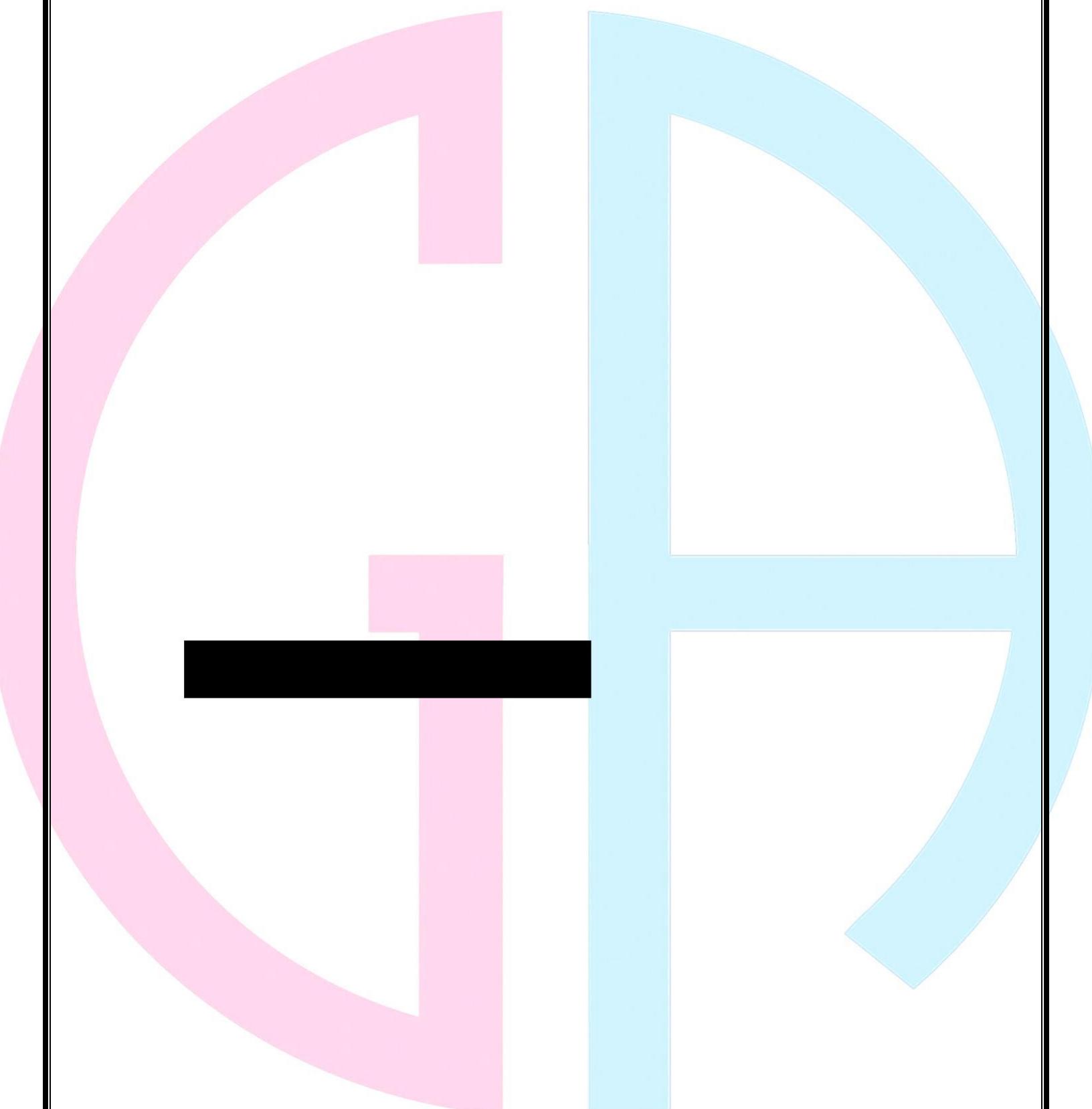
**Answer – b) 2420, 2000**

**Explanation :**

Let the share of raj and parth be R and P

$$R * (1+10/100)^5 = (4420 - R) * (1+10/100)^7$$

We get R = 2420, so P = 2000



# 120+ MIXTURE & ALLIGATION QUESTIONS WITH SOLUTION

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1. A vessel is filled with liquid, which is 3 parts water and 5 parts milk. How much of the liquid should be drawn off and replaced by water to make it half water and half milk?
- A) 1/8  
B) 1/5  
C) 2/3  
D) 2/7  
E) None

**View Answer****Option B****Solution:**

Suppose the vessel initially contains 8 litres of liquid.

Let  $x$  litres of this liquid be replaced with water.

$$\text{water in new mixture} = (3-3x/8+x)$$

$$\text{syrup in new mixture} = (5-5x/8)$$

$$\text{Then } (3-3x/8+x) = (5-5x/8)$$

$$5x + 24 = 40 - 5x$$

$$10x = 16 \Rightarrow x = 8/5$$

So part of mixture replaced is  $8/5 * 1/8 = 1/5$

2. Milk and water are in a Can A as 4:1 and in Can B as 3:2. For Can C, if one takes equal quantities from A and B, find the ratio of milk to water in C.
- A) 7:3  
B) 4:7  
C) 3:5  
D) 5:4  
E) None

**View Answer****Option A****Solution:**

Ratio of only milk in vessel A = 4 : 5

Ratio of only milk in vessel B = 3 : 5

Let ' $x$ ' be the quantity of milk in vessel C

$$4/5 \dots \dots \dots 3/5$$

$$\dots \dots \dots x$$

$$3/5-x \dots \dots \dots x-4/5$$

$$(3/5-x)/(x-4/5)=1/1$$

$$X=7/10$$

Therefore, quantity of milk in vessel C = 7

$\Rightarrow$  Water quantity =  $10 - 7 = 3$   
Hence the ratio of milk & water in vessel 3 is 7 : 3

3. A mixture contains alcohol and water in the ratio 3:2. If it contains 3 liters more alcohol than water, the quantity of alcohol in the mixture
- A) 6  
B) 8  
C) 9  
D) 5  
E) None

**View Answer****Option C****Solution:**

If quantity of water as  $x$  and alcohol as  $x+3$ .

$$(x+3)/x=3/2$$

Water  $x=6$  and alcohol =  $x+3 = 9$  liters

4. Three types of Rice of Rs. 1.27, Rs. 1.29 and Rs. 1.32 per kg are mixed together to be sold at Rs. 1.30 per kg. In what ratio should this rice be mixed?
- A) 4:1:3  
B) 2:3:1  
C) 1:1:2  
D) 1:2:1  
E) None

**View Answer****Option C****Solution:**

$$127 \dots \dots \dots 132$$

$$\dots \dots \dots 130$$

$$2 \dots \dots \dots 3$$

Then

$$129 \dots \dots \dots 132$$

$$\dots \dots \dots 130$$

$$1 \dots \dots \dots 2$$

Hence final ratio is 2 : 2 : 3+1 ==> 1:1:2

5. A dishonest milkman professes to sell his milk at cost price but he mixes it with water



E) None

**View Answer**

**Option D**

**Solution:**

Copper in 4 kg =  $4/5$  and Zinc in 4 kg =  $4*4/5=16/5$

Copper in 5 kg =  $5/6$  and Zinc in 5 kg =  $5*5/6=25/6$

Therefore, Copper in mixture =  $4/5 + 5/6 = 49/30$

and Zinc in the mixture =  $16/5 + 25/6 = 221/30$

Therefore the required ratio = 49 : 221

10. Rs. 69 were divided among 115 students so that each girl gets 50 paise less than a boy. Thus each boy received twice the paise as each girl received. The no. of girls in the class is:
- A) 47  
B) 23  
C) 92  
D) 25  
E) None

**View Answer**

**Option C**

**Solution:**

Here each girl receives 50 paise and each boy receives 100 paise and the average receiving of each student.

$$= 6900/115 = 60 \text{ paise}$$

$$50 \dots \dots \dots \dots \dots 100$$

$$\dots \dots \dots \dots \dots 60$$

$$40 \dots \dots \dots \dots \dots 10$$

$$4:1$$

$$5 == 115$$

$$4 ? == 92$$

1. A shopkeeper purchase two quantities of rice at the rate of Rs. 280/kg and Rs. 260/kg . In 52 kg of the second quantity, how much rice of the first quantity should be mixed so that by selling the resulting

mixture at Rs.300/ kg , he gains a profit of 25%.

A) 20 kg

B) 26 kg

C) 33 kg

D) 30 kg

E) 18 kg

**View Answer**

**Option B**

**Solution:**

$$\text{profit \%} = 25/100 = 1/4$$

$$\text{CP} = 4 \text{ and profit} = 1$$

$$\text{SP} = 5$$

$$\text{Now , SP} = 300$$

$$5 \dots \dots \dots \dots \dots 300$$

$$1 \dots \dots \dots \dots \dots 60$$

$$\text{CP} = 4 * 60 = \text{R.}240/\text{kg}$$

$$\text{Rice 1} \dots \dots \dots \dots \dots \text{Rice 2}$$

$$200 \dots \dots \dots \dots \dots 260$$

$$\dots \dots \dots \dots \dots 240$$

$$20 \dots \dots \dots \dots \dots 40$$

$$1:2$$

52 kg of the second quantity .

$$\text{so Rice 1 : Rice 2} = 1*26 : 2 * 26 = 26 : 52$$

Hence , 26 kg of Rice 1 is added in the mixture.

2. If the average weight of the whole class is 50 kg. And the average weight of boys in the class is 30 kg and the average weight of girls in the same class is 22 kg. What could be the possible strength of boys and girls in the class respectively?

A) 5 : 8

B) 5 : 3

C) 7 : 5

D) 7 : 6

E) 9 : 5

**View Answer**

**Option B**

**Solution:**

$$\text{No. of boys : No. of girls}$$

$$22 \dots \dots \dots \dots \dots 30$$

$$\dots \dots \dots \dots \dots 25$$

$$5 \dots \dots \dots \dots \dots 3$$

$$3 : 5$$

Hence , the possible strength of the boys and girls in the whole class = 5 : 3

3. A woman travels 200 km in 5 hours in two parts. In the first part of the journey, she travels by car at the speed of 50 km/hr . In the second part of the journey , she travels by bus at the speed of 30 km/hr . How much distance did she travel by bus?
- A) 75 km  
B) 55 km  
C)40 km  
D) 95km  
E) 20 km

**View Answer**

**Option A**

**Solution:**

$$\begin{array}{r} \text{speed of car} \quad \text{--- speed of bus} \\ 50 \quad \quad \quad \quad \quad 30 \\ \hline \quad \quad \quad \quad \quad 200/5 \\ 10 \quad \quad \quad \quad \quad 10 \\ \hline \quad \quad \quad \quad \quad = 1 : 1 \end{array}$$

Time taken by both the vehicles =  $5/2 = 2.5$  hrs.

Therefore, distance travelled by bus =  $30 * 2.5 = 75$  km

4. Somnath bought two different kinds of oil, one is soya oil and another is olive oil. There are two mixtures of these two oils . In the first mixture the ratio of the soya and olive oil is in the ratio of 3 : 4 and in the second mixture the ratio of the soya and olive oil is 5 : 6 . If he mixes these two mixtures and makes a third mixture of 36 litres in which the ratio of the soya oil and olive oil is 4 : 5. Find the quantity of the second mixture that is needed to make 36 litres of third type of mixture.
- A) 25 L  
B) 22 L  
C)34 L  
D) 18 L  
E) 27 L

**View Answer**

**Option B**

**Solution:**

$$\text{MixI} \quad \quad \quad \text{MixII}$$

(3/7) ----- (5/11)

----- (4/9)

(1/99) ----- (1/63)

Ratio = 7 : 11

Required quantity of the second mixture to make the third mixture  
 $= (11/18)*36 = 22$  litres

5. A vessel which contains 100 litres of salt and sugar solution in the ratio of 22 : 3 . From the vessel 40 litres of mixture is taken out and 4.8 litres of pure salt solution and pure sugar solution , both are added to the mixture . What is the percentage of the quantity of sugar solution in the final mixture less than the quantity of salt solution?
- A) 72(1/4)%  
B) 78(1/2)%  
C) 70(1/5)%  
D) 74(1/3)%  
E) 79(1/6)%

**View Answer**

**Option E**

**Solution:**

40 L is taken out remaining 60 L  
 salt solution =  $(22/25)*60 = 52.8$  L  
 sugar solution =  $(3/25)*60 = 7.2$  L  
 On adding salt and sugar solution  
 salt solution =  $52.8 + 4.8 = 57.6$  L  
 sugar solution =  $7.2 + 4.8 = 12$  L  
 Require % =  $(57.6 - 12)/57.6 = 79(1/6)\%$

6. The average marks of the students in four sections P, Q ,R and S together is 60% . The average marks of the students of P, Q, R and S separately are 45% , 50%, 72% and 80% respectively. If the average marks of the students of P and Q together is 48% and that of the students of Q and R is 60%. What is the ratio of number of students in sections A and D ?
- A) 7 : 5  
B) 4 : 3  
C) 2 : 1  
D) 3 : 2  
E) 5 : 3

**View Answer**

**Option B****Solution:**

$$\begin{array}{c}
 A \text{ --- D} \\
 45 \text{ --- 80} \\
 \text{--- 60} \\
 20 \text{ --- 15} \\
 \text{4 : 3}
 \end{array}$$

Hence , the required ratio = 4 : 3

7. A shopkeeper has two types of wheat . The percentage of first type of wheat is 80% and the percentage of second type of wheat is 60%. If he mixes 28kg of first type of wheat to the 32 kg of second type of wheat , then find the percentage of resultant wheat in the mixture.
- A) 66  
B) 60.15  
C) 75.12  
D) 69.33  
E) 58.05

**View Answer****Option D****Solution:**

$$\begin{array}{c}
 \text{Type I --- Type II} \\
 60 \text{ --- 80} \\
 \text{--- x} \\
 32 \text{ --- 28} \\
 8 : 7
 \end{array}$$

7 : 8 (reverse ratio)

Now,  $(80-60)*7/(7+8) = 20 * (7/15) = 9.33$

Required % =  $60 + 9.33 = 69.33$

8. From a container of wine , 8 litres of wine is drawn and replace the same quantity with water. This is performed three more times, now the ratio of the quantity of wine to that of water in the container becomes 16 : 65. What is the initial quantity of wine in the container?
- A) 26 L  
B) 28 L  
C) 24 L  
D) 22 L  
E) 20 L

**View Answer****Option C****Solution:**

Let  $x$  be the initial quantity of the wine .  
After 4 operations the quantity of wine left  
 $= [x \{ 1 - (8/x)^4 \}]L$   
 $\Rightarrow [x \{ 1 - (8/x) \}^4] = 16 / 81$   
 $\Rightarrow \{ 1 - (8/x) \}^4 = 16/81$   
 $\Rightarrow (x - 8)/x = 2/3$   
 $\Rightarrow x = 24 \text{ L}$

9. The price of the diesel is Rs. 70 per litre and the price of the petrol is Rs. 40 per litre. If the profit after selling the mixture at Rs. 75 per litre be 25 %. Find the ratio of the diesel and petrol in the mixture.
- A) 5 : 4  
B) 4 : 3  
C) 3 : 2  
D) 2 : 1  
E) 1 : 3

**View Answer****Option D****Solution:**

$$\begin{array}{l}
 25\% = \frac{1}{4} \\
 CP = 4, SP = 5 \\
 SP - 5 = 75 \\
 1 = 15 \\
 CP = 4 * 15 = 60 \\
 \text{Diesel --- Petrol} 70 \\
 40 \\
 \text{--- 60} \\
 20 \text{ --- 10} \\
 \text{ratio} = 2 : 1
 \end{array}$$

10. There are two factories, one in India and another in US. Mr. Anish purchased these two factories for total 80 crores. Later on, he sold the Indian factory at the rate of 16% profit and the US factory at 32% profit, thereby he gained 20%. What is the selling price of the factory?
- A) 84 cr.  
B) 75 cr.  
C) 69.6 cr.  
D) 68.5 cr.  
E) 70 cr.

**View Answer****Option C****Solution:**

Indian Factory --- US factory

$$\begin{array}{r}
 16 \quad \quad \quad 32 \\
 \underline{-} \quad \quad \quad \underline{-} \\
 12 \quad \quad \quad 4 \\
 = 3 : 1
 \end{array}$$

The CP of Indian Factory =  $(80/4)*3 = 60$  crores

SP = 69.6 crores

- A chemist has 10L of a solution that is 10% nitric acid by volume. He wants to dilute the solution to 4% strength by adding water. How many litres of water must be added?
  - A) 40L
  - B) 33 L
  - C) 25L
  - D) 15 L
  - E) 20L

[View Answer](#)

#### Option D

##### Solution:

$$\text{Quantity of nitric acid} = 10 * (1/10) = 1 \text{ L}$$

$$\text{Water} = 10 - 1 = 9 \text{ L}$$

Let x litre of water be added,

$$(10 + x) * (4/100) = 1$$

$$\Rightarrow x = 15 \text{ L}$$

- A bottle contains  $(3/4)$  of milk and the rest water. How much of the mixture must be taken away and replaced by an equal quantity of water so that the mixture has half milk and half water?
  - A) 42(1/4)%
  - B) 33(1/3)%
  - C) 22(1/3)%
  - D) 18(1/2)%
  - E) 21(1/2)%

[View Answer](#)

#### Option B

##### Solution:

$$\text{Ratio of milk : water} = 3 : 1$$

$$\text{water} = (1/4)*100 = 25$$

Let x L is taken out, then

$$\text{qty. of milk left} = (3 - 3x/4)$$

$$\text{water left} = (1 - x/4) + x$$

$$\text{Now, } 3 - 3x/4 = (1 - x/4) + x$$

$$\Rightarrow x = 4/3$$

$$\text{Required \%} = 4/(3*4)*100 = 33(1/3)\%$$

- P and Q are two alloys of gold and copper prepared by mixing metals in the ratio 7 : 2 and 7 : 11 resp. If equal quantities of the alloys are melted to form a third alloy R, Find the ratio of gold and copper.

$$\text{A) } 6 : 7$$

$$\text{B) } 7 : 5$$

$$\text{C) } 4 : 3$$

$$\text{D) } 5 : 6$$

$$\text{E) } 3 : 2$$

[View Answer](#)

#### Option B

##### Solution:

$$\text{In 1 kg of alloy P, Gold} = 7/9$$

$$\text{Copper} = 2/9$$

$$\text{In 1 kg of alloy Q, Gold} = 7/18$$

$$\text{Copper} = 11/18$$

Therefore, Ratio of Gold and Copper in alloy R

$$= 7/9 + 7/18 : 2/9 + 11/18$$

$$= 21 : 15 = 7 : 5$$

- A container has 30 L of water. If 3 L of water is replaced by 3 L of spirit and this operation is repeated twice, what will be the quantity of water in the new mixture?
  - A) 27.1 L
  - B) 25.5 L
  - C) 14.4 L
  - D) 24.3 L
  - E) 22 L

[View Answer](#)

#### Option D

##### Solution:

Suppose a container contains x units of liquid from which y units are taken out and replaced by water. After n operations, the quantity of pure liquid.

$$= x(1 - y/x)^n \text{ units}$$

$$= \text{Remaining water} = 30(1 - 3/30)^2 = 24.3 \text{ L}$$

5. Two barrels contain a mixture of ethanol and gasoline. The content of the ethanol is 60% in the first barrel and 30% in the second barrel. In what ratio must the mixtures from the first and the second barrels be taken to form a mixture containing 50% ethanol?
- A) 2 : 1  
B) 2 : 5  
C) 1 : 3  
D) 3 : 2  
E) 4 : 5

**View Answer****Option A****Solution:**

$$\begin{array}{rcl} \text{Mixture I} & \text{---} & \text{Mixture II} \\ \text{Ethanol} - (3/5) & \text{---} & \text{Ethanol} - (3/10) \\ & \text{---} & (1/2) \\ (1/5) & \text{---} & (1/10) \\ = 2 : 1 & & \end{array}$$

6. A solution of sugar syrup has 15% sugar. Another solution has 5% sugar. How many litres of the second solution must be added to 20 L of the first solution to make a solution of 20% sugar.
- A) 60 L  
B) 45 L  
C) 50 L  
D) 30 L  
E) 20 L

**View Answer****Option E****Solution:**

Let  $x$  L of second solution must be added.  
 Then,  $[15*20 + 5*x]/(20 + x) = 10$   
 $\Rightarrow x = 20$  L

7. A person has a chemical of Rs. 25 per litre. In what ratio should water be mixed in that chemical, so that after selling the mixture at Rs. 20 per litre he may get a profit of 25%?
- A) 9 : 15  
B) 10 : 13  
C) 16 : 9  
D) 15 : 22  
E) 21 : 17

**View Answer****Option C****Solution:**

Selling price of mixture = Rs. 20

Cost price of mixture =  $(100/125)*20 =$

Rs.16

Rule of mixture

25 ————— 0

————— 16

16 ————— 9

So, the required ratio = 16 : 9

8. Three containers X, Y and Z are having mixtures of milk and water in the ratio 1 : 5 , 3 : 5 and 5 : 7 resp. If the capacities of the containers are in the ratio 5 : 4 : 5, then find the ratio of the milk to the water, if the mixtures of all the three containers are mixed together.
- A) 44 : 119  
B) 24 : 111  
C) 46 : 143  
D) 53 : 115  
E) 55 : 157

**View Answer****Option D****Solution:**

Ratio of milk and water  
 $= [(1/6)*5 + (3/8)*4 + (5/12)*5] : [(5/6)*5 + (5/8)*4 + (7/12)*5] = 53 : 115$

9. How many kg of sugar costing Rs. 5.75 per kg should be mixed with 75 kg of cheaper sugar costing Rs. 4.50 per kg so that the mixture is worth Rs. 5.50 per kg ?
- A) 440 kg  
B) 300 kg  
C) 112 kg  
D) 225 kg  
E) 320 kg

**View Answer****Option B****Solution:**

$$\begin{array}{rcl} \text{Sugar I} & \text{---} & \text{Sugar II} \\ 5.75 & \text{---} & 4.50 \\ & \text{---} & 5.50 \\ 1 & \text{---} & 0.25 \end{array}$$

ratio = 4 : 1

The required qty. of sugar I =  $(75/1) * 4 = 300 \text{ kg}$

10. One test tube contains some acid and another test tube contains an equal quantity of water. To prepare a solution, 20 g of the acid is poured into the second test tube. Then, two-thirds of the so formed solution is poured from the second test tube into the first. If the fluid in the first test tube is four times that in second, what quantity of water was taken initially.
- A) 150 g  
B) 120 g  
C) 90 g  
D) 100 g  
E) 150 g

[View Answer](#)

#### Option D

**Solution:**

Initially, let  $x$  g of water and Acid was taken. Initially 1st process

$$\text{First test tube} = (x - 20) \text{ g}$$

$$\text{Second test tube} = (x + 20) \text{ g}$$

2nd process

$$\text{First test tube} = (x - 20) + (x + 20) * (2/3)$$

$$\text{Second test tube} = (x + 20) * (1/3)$$

Now,

$$(x - 20) + (2/3)(x + 20) = 4 * (1/3)(x + 20)$$

$$\Rightarrow x = 100 \text{ g}$$

1. A shopkeeper sells two types of books national books and international books .He sells national books at Rs. 18 / book and incurs at loss of 10% whereas on selling the international books at Rs. 30 / book ,he gains 20 % .Find the ratio of the national and international books such that he can gain a profit of 25% by selling the combined books at 27.5/ book ?
- A) 5:6  
B) 5:2  
C) 4:5  
D) 2:3  
E) 4:7

[View Answer](#)

#### Option B

**Solution:**

Loss at national books = 10% = 1/10

$$\text{SP} \rightarrow 9 = 18$$

$$1 = 2$$

$$\text{CP} \rightarrow 10 = 20$$

Gain at international books = 20 % = 1/5

$$\text{SP} \rightarrow 6 = 30$$

$$1 = 5$$

$$\text{CP} \rightarrow 5 = 25$$

$$\text{CP} = 4 * 5.5 = 22$$

National Books

$$20$$

International Books

$$25$$

$$.$$

$$22$$

$$5$$

$$2$$

2. One test tube contains some acid and another test tube contains an equal quantity of water .To prepare a solution , 20 g of the acid is poured into the second test tube .Then , two –third of the so- formed solution is poured from the second tube into the first .If the fluid in the first test tube is four times that in the second ,what quantity of water was taken initially ?
- A) 90 g  
B) 70 g  
C) 154 g  
D) 100g  
E) 180 g

[View Answer](#)

#### Option D

**Solution:**

Let  $x$  g of water was taken initially .

1<sup>st</sup> process

$$\text{First test tube} (x- 20)$$

$$\text{second test tube} (x+20)$$

2<sup>nd</sup> process

$$\text{First test tube} = [(x-20) + 2/3 (x+20)]$$

$$\text{Second test tube} = 1/3(x+20)$$

Now ,

$$(x - 20 ) + 2/3(x+20) = 4* (1/3)(x+20)$$

$$\Rightarrow x = 100 \text{ g}$$

3. Two brands of detergents are to be combined . Detergent A contains 40 % bleach and 60 % soap . While detergent B contains 25 % bleach and 75% soap . If the combined mixture is to be 35 % bleach .What % of the final mixture should be detergent A?
- A) 30%  
B) 45.64%  
C) 20%  
D) 32.5%  
E) 66.67%

**View Answer**

**Option E**

**Solution:**

A 40 . . 10 : 1	B 25 35 52
-----------------------------	---------------------

Therefore ,  
 $\% \text{ of detergent in A} = (2/3) * 100 =$

4. A thief has stolen 15 L of beer from a container and replaced with the same quantity of water .He again repeated this process 3 times .Thus the ratio of the beer become 343 :169 .Find the initial amount of beer in the container .
- A) 90 L  
B) 120 L  
C) 140 L  
D) 110 L  
E) 80 L

**View Answer**

**Option B**

**Solution:** The initial amount of beer in the container was  $=343 + 169 = 512 \text{ L}$   
 Initial amt. of beer : After mixed with

water  
 $512 : 343$

Taking cube roots on both the sides,  
 $8 : 7$

For 1 unit of beer  $\rightarrow 15 \text{ L}$   
 For 8 units of beer  $\rightarrow 120 \text{ L}$

5. A tank which contains a mixture of syrup and water in ratio 15:6. 25.5 litres of mixture is taken out from the tank and 2.5 litres of pure water and 5 litres of syrup is added to the mixture. If resultant mixture contains 25% water, what was the initial quantity of mixture in the tank before the replacement in litres?
- A) 77.7  
B) 70.78  
C) 75.6  
D) 80.5  
E) 76

**View Answer**

**Option A**

**Solution:**

Quantity of Syrup =  $15x$   
 Quantity of water =  $6x$   
 Total =  $21x$   
 Resultant Mixture =  $21x - 25.5 + 2.5 + 5 = 21x - 18$   
 Resultant water =  $6x - 25.5 * (6/21) + 2.5 = 6x - 7.28$   
 Resultant mixture contains 25% water  
 $(21x - 18) * 25/100 = 6x - 7.28$   
 $x = 3.7$   
 Initial quantity =  $21 * 3.7 = 77.7$

6. Ram covered a distance of 200km in 10 hrs . The first part of his journey is covered by auto ,then he hired a car .The speed of the auto and car is 15 km/hr and 30 km /hr resp. Find the ratio of distance covered by auto and car .
- A) 3 : 4  
B) 2 : 1  
C) 1 : 1  
D) 2: 3  
E) None of these

[View Answer](#)**Option C****Solution:**

$$\text{Speed of the Ram} = 200 / 10 = 20 \text{ km/hr}$$

Auto	Car	20
15km/hr	30km/hr.	

10	:	5
2	:	1

Now ,

Ratio of distance covered :

Auto	:	Car
2 * 15	:	1 * 30
30	:	30
1	:	1

7. 9 L are drawn from a cask full of water and it is then filled with milk , 9 L of mixture are drawn and the cask is again filled with milk .The quantity of water now left in the cask to that of the milk in it is 16 : 9 .How much does the cask hold ?
- A) 30 L  
B) 45 L  
C) 35 L  
D) 50 L  
E) 42 L

[View Answer](#)**Option B****Solution:**

$$16 \rightarrow \text{water}$$

$$25 \rightarrow \text{milk}$$

$$\Rightarrow \sqrt{(16/25)} = 4/5$$

$$\text{If } 1 \rightarrow 9$$

$$\text{then } 5 = 45 \text{ litres}$$

8. If 2 kg metal , of which  $(1/3)$  is zinc and the rest is copper , be mixed with 3 kg of metal , of which  $(1/4)$  is zinc and the rest is copper . What is the ratio of zinc to copper in the mixture ?
- A) 11 : 43  
B) 15 : 37

C) 17 : 43

D) 23 : 74

E) 18 : 52

[View Answer](#)**Option C****Solution:**

$$\text{Quantity of zinc in the mixture} = 2 (1/3) + 3 (1/4) = (2/3) + (3/4) = 17/12$$

$$\text{Quantity of copper in the metal} = (3+2) - (17/12) = 43/12$$

$$\text{Therefore , } 17 / 12 : 43 / 12 = 17 : 43$$

9. Vessels A and B contain mixtures of milk and water in the ratios 4 : 5 and 5 : 1 resp .In what ratio should quantities of mixture be taken from A and B to form a mixture in which milk to water is in the ratio 5 : 4 ?
- A) 5 : 2  
B) 7 : 5  
C) 6 : 11  
D) 8 : 5  
E) 9 : 4

[View Answer](#)**Option A****Solution:**

$$\text{Quantity of milk in vessel A} = 4 / (4+5) = 4/9$$

$$\text{Quantity of milk in vessel B} = 5/(5+1) = 5/6$$

$$\text{Quantity of milk in resultant mixture} = 5 / (5+4) = 5/9$$

A	B
4/9	5/6
.	5/9
5/18	1/9

$$\text{Required ratio} = 5:2$$

10. Two barrels contain a mixture of ethanol and gasoline is 60% in the first barrel and 30% in the second barrel .In what ratio must the mixtures from the first and the second barrels be taken to form a mixture



then average become 60. Find the marks of that student?

- A) 78
- B) 59
- C) 40
- D) 30
- E) 45

[View Answer](#)

### Option C

#### Solution:

Average increases by 1 when 1 leaves, so for 19 students::

$$\therefore 59 - 19 = 40$$

6. If the sum of 5 consecutive odd number is 265. Then the largest number would be?
  - A) 57
  - B) 59
  - C) 50
  - D) 40
  - E) 30

[View Answer](#)

### Option A

#### Solution:

$$\therefore \text{Average} = 265/5 = 53$$

(average) 53.....55.....57.....ans is 57

7. In a bag there are three types of coins, 1rupee, 50paisa, 25paisa in the ratio of 5:10:16. The total value is Rs 700. The total number of coins is?
  - A) 1750
  - B) 1650
  - C) 1550
  - D) 1450
  - E) 1850

[View Answer](#)

### Option C

#### Solution:

$$\therefore 5x : 10x : 16x$$

$$5x + 10x/2 + 16x/4 = 700$$

$$14x = 700$$

$$x = 50$$

$$(5x + 10x + 16x) = (5+10+16)*50 = 1550$$

8. A can contain a mixture of two liquids P & Q in proportion 3 : 5. When 8ltr of mixture

are drawn off and the can is filled with Q, the proportion of P & Q becomes 3:7. How many ltr of liquid P was contained in the can initially?

- A) 15ltr
- B) 12ltr
- C) 16ltr
- D) 20ltr
- E) 25ltr

[View Answer](#)

### Option A

#### Solution:

P .....	Q
initial	3.....5
after	3.....7
7-5 = 2	
2 = 8	
1 = 4	
after (7+3) = 10 = 40ltr	
so initial = 3/3+5*40 = 15ltr	

9. 300 ltr of mixture contains 20% water in it and rest is milk. The amount of milk that must be added so that the resulting mixture contains 90% milk is?
  - A) 200ltr
  - B) 300ltr
  - C) 250ltr
  - D) 350ltr
  - E) 400ltr

[View Answer](#)

### Option B

#### Solution:

$$\therefore 20\% \text{ of } 300 = 60$$

now we have to make milk 90% then water will become 10%

$$10\% = 60$$

$$100\% = 600$$

$$\text{so } 600 - 300 = 300\text{litr}$$

10. 8kg of tea consisting Rs240 per kg is mixed with 9kg of tea costing Rs250 per kg. The average price per kg of the mixed tea is ?
  - A) 245.29
  - B) 246.29
  - C) 244.29
  - D) 247.29
  - E) 248.29

**View Answer****Option A****Solution:**

$$\begin{aligned} \text{.} & 8*240 + 9*250/17 = 4170/17 \\ & = 245.29 \end{aligned}$$

1. The ratio of A & B in a mixture is 8:1, 15ltr of mixture is taken out and same amount of B is added, now ratio become 4:3. Find the initial amount of A in the mixture (approx)?
- A) 24  
B) 37  
C) 34  
D) 40  
E) 28

**View Answer****Option B****Solution:**

initial ..... A : B  
 .                8 : 1 → (1)  
 Find            4 : 3 → (2)  
 Make value of A same, multiply by 2 in equation (2)  
 A : B  
 8 : 1  
 8 : 6 (+5)  
 5 = 15  
 1=3  
 8+6=14 =42  
 So initial =  $8/9 * 42 = 37.33$

2. A shopkeeper sells his milk at cost price but he add some water and earn 16(2/3)% profit. Find the ratio of milk and water?
- A) 6:1  
B) 1:6  
C) 5:1  
D) 1:5  
E) 5:6

**View Answer****Option A****Solution:**

In this case we will let milk 100 and water profit

Milk : Water  
 100 : 16(2/3)%  
 6 : 1

3. There is 70ltr milk in a container. From this 7ltr of milk is taken out and added some quantity of water. This process is repeated two more times. Find the remaining milk in container?
- A) 45ltr  
B) 48.03ltr  
C) 50ltr  
D) 51.03ltr  
E) 56.22ltr

**View Answer****Option D****Solution:**

$$\begin{aligned} 7/70 &= 1/10, \text{ Remaining } = 9/10 \\ (9/10)^T * \text{Total} &= \text{Milk} \\ (9/10)^3 * 70 &= 51.03 \text{ ltr} \end{aligned}$$

4. A man has to distribute Rs65 in a class of 50 students. He gives 1.5 rupee to boys and 1 rupee to girls each. Find how many girls are there in the class?
- A) 30  
B) 20  
C) 15  
D) 25  
E) 22

**View Answer****Option B****Solution:**

$$\begin{aligned} \text{Mean price} &= 6500/50 = 130 \text{ paisa} \\ \text{Boys} \dots \dots \dots \text{Girls} \\ 150 \dots \dots \dots 100 \\ . & 130 \\ 30 \dots \dots \dots 20 \\ 3 : 2 \\ 2/5 * 50 &= 20 \end{aligned}$$

5. In an alloy the ratio of copper and aluminum is 4:5 and in other alloy the ratio of copper and aluminum is 6:7. In what

ratio these alloy should be taken to make ratio of copper and aluminum is 5:6?

- A) 5 : 11
- B) 11 : 5
- C) 13 : 9
- D) 9 : 13
- E) 12 : 7

**View Answer**

**Option D**

**Solution:**

$$\begin{array}{ll} C \dots\dots\dots A \\ 4/9 \dots\dots\dots 6/13 \\ . \quad \quad \quad 5/11 \\ 1/143 \dots\dots\dots 1/99 \\ 9 : 13 \end{array}$$

6. In a bag there are three types of coins, 1rupee, 50 paisa and 25paisa in the ratio of 5:10:24. There total value is Rs208. The total number of coins is?
- A) 507
  - B) 208
  - C) 961
  - D) 744
  - E) 602

**View Answer**

**Option A**

**Solution:**

first make ratio according to rupee  
 $5 : 10/2 : 24/4$   
 $5 : 5 : 6$   
 $16 = 208$   
 $1 = 13$   
 $(5+10+24) = 39 = 39 * 13 = 507$

7. 400gm of sugar solution has 30% sugar in it. How much sugar should be added to make it 50% in the solution (in gm)?
- A) 120
  - B) 60
  - C) 100
  - D) 160
  - E) 180

**View Answer**

**Option D**

**Solution:**

$$\begin{array}{l} 30\% \text{ of } 400 = 120 \\ \text{Remaining } = 280, \text{ this will remain same in} \\ \text{another solution but now it will become} \\ 50\%. \text{ So} \\ 50\% = 280 \\ 100\% = 560 \\ \text{Difference} = 560 - 400 = 160 \end{array}$$

8. A mixture of certain quantity of milk with 15ltr of water is sold at 80paisa/ltr. If pure milk be worth Rs1.10 per ltr. How much milk is there in the mixture?
- A) 50 ltr
  - B) 40 ltr
  - C) 60 ltr
  - D) 70 ltr
  - E) 30 ltr

**View Answer**

**Option B**

**Solution:**

$$\begin{array}{ll} \text{Milk} \dots\dots \text{Water} \\ 110 \dots\dots\dots 0 \\ . \quad \quad \quad 80 \\ 80 \dots\dots\dots 30 \\ 8 : 3 \\ 3 = 15, \text{ so } 8 = 40 \end{array}$$

9. A merchant borrowed Rs3500 from two money lenders. For one loan he paid 14% p.a and for other 18% p.a. the interest paid for one year was Rs525. How much did he borrow at 18%p.a?
- A) Rs875
  - B) Rs625
  - C) Rs750
  - D) Rs1000
  - E) Rs925

**View Answer**

**Option A**

**Solution:**

$$\begin{array}{l} 525/3500 * 100 = 15\% \\ 14 \dots\dots\dots 18 \\ . \quad \quad \quad 15 \end{array}$$

- 3.....1  
 $1/4 * 3500 = 875$
10. How many kg of salt at 42 paise per kg must a man mix with 25kg of salt at 24 paise per kg, so that he may on selling the mixture at 40 paise per kg, gain 25% on the outlay?  
 A) 15kg  
 B) 20kg  
 C) 25kg  
 D) 30kg  
 E) 18kg

**View Answer****Option B****Solution:**

$$25\% = 1/4$$

$$CP \dots SP$$

$$4 \dots 5$$

$$4 = 32, 5 = 40$$

$$42 \dots 24$$

$$\dots 32$$

$$8 \dots 10$$

$$4 : 5 \rightarrow *5 = 25\text{kg}$$

$$\text{So } 4 * 5 = 20$$

1. After selling an article a man gains 25%. Also he uses a false weight of 10%. Find the total profit earned by him?  
 A) 37.5%  
 B) 35%  
 C)  $37(8/9)\%$   
 D)  $38(8/9)\%$   
 E) 39%

**View Answer****Option C****Solution:**

in this case we keep 1000 in the middle, Add profit one side and minus weight on the other side, to find net profit.

$$\begin{array}{ccc} & 1000 & \\ (\text{weight})900 & & 1250(\text{profit}) \end{array}$$

$$\dots 1250 - 900 = 350$$

$$350/900 * 100 = 38(8/9)\%$$

2. A man wants to gain 20% after selling milk at cost price. So in what ratio he has to add water to earn this profit?  
 A) 5:1  
 B) 1:4  
 C) 1:5  
 D) 4:1  
 E) 1:3

**View Answer****Option C****Solution:**

Whenever product has to be sold on cost price to get profit. Then keep profit one side & 100 on the other side. To get ans.

$$W : M$$

$$20 : 100$$

$$1 : 5$$

3. A shopkeeper has two types of articles. The CP of 1st article is 20Rs/kg and other article is X Rs/kg. He has quantity of 1st article is 10kg and other article is 20 kg. He sold the mixture of these articles at Rs 39/kg with a profit of 30%. Find the value of X?  
 A) 70Rs/kg  
 B) 35Rs/kg  
 C) 60Rs/kg  
 D) 30Rs/kg  
 E) 40Rs/kg

**View Answer****Option C****Solution:**

$$30\% \text{ profit} = 30/100 = 3/10$$

$$CP = 10$$

$$SP = 10 + 3 = 13$$

$$13 = 39$$

$$So 10 = 10 * 3 = 30$$

$$20 \dots x$$

$$\dots 30$$

$$10 \dots 20 \text{ [Given]}$$

$$1 : 2$$

$$So (30-20)/(x-30) = 2/1$$

$$x = 35$$

4. A sugar solution of 60kg has 20% sugar in it. How much sugar must be added in this

to make it half of the solution?

- A) 18kg
- B) 96kg
- C) 24kg
- D) 36kg
- E) 42kg

[View Answer](#)

**Option D**

**Solution:**

$$20\% \text{ of } 60\text{kg} = 12$$

$$\text{Sugar} = 12$$

$$\text{Water} = 48$$

Now if we add only sugar then the value of water will be constant and that will be 50% of solution

$$\text{So : } 50\% = 48$$

$$100\% = 96 \text{ new solution}$$

$$\text{Now } 96-60= 36\text{kg}$$

5. A man has 80 pens. He sells some of these at 15% profit and the rest at 10% loss. Overall he gets a profit of 10%. Find how many pens were sold at 15% profit ?
- A) 16
  - B) 64
  - C) 40
  - D) 72
  - E) None of these

[View Answer](#)

**Option B**

**Solution:**

$$+15 \dots \dots \dots -10$$

$$\dots \dots \dots +10$$

$$20 \qquad \qquad \qquad 5$$

$$4 : 1$$

$$4/(4+1) * 80 = 64 \text{ pens.}$$

6. How much tea at Rs4 a kg should be added to 15kg of tea at Rs10 a kg so that the mixture be worth Rs6.50 a kg?
- A) 15
  - B) 35
  - C) 25
  - D) 21
  - E) 18

[View Answer](#)

**Option D**

**Solution:**

$$4 \dots \dots \dots 10$$

$$\dots \qquad \qquad \qquad 6.5$$

$$3.5 \dots \dots \dots 2.5$$

$$21 = 3*7 \dots \dots \dots 5*3 = 15$$

7. There are two types of jar. In the 1st jar the ratio of copper and aluminium is 1:2 and in the 2nd Jar is 1: 4. In what ratio these two jar should be mix to make 3rd jar In which the ratio of copper & aluminium become 1:3?
- A) 3:5
  - B) 5:3
  - C) 2:5
  - D) 5:2
  - E) 2:3

[View Answer](#)

**Option A**

**Solution:**

$$\text{copper in 1st} = 1/3$$

$$\text{Copper in 2nd} = 1/5$$

$$\text{copper in 3rd} = 1/4$$

$$1/3 \qquad \qquad \qquad 1/5$$

$$\dots \qquad \qquad \qquad 1/4$$

$$1/20 \qquad \qquad \qquad 1/12$$

$$3 : 5$$

8. A butler stole wine from a butt of sherry which contained 50% spirit and he replaced it with wine which contains 20% spirit. Now the strength of butt remain only 30%. How much of the butt did he steal?
- A) 1/3
  - B) 1/2
  - C) 2/3
  - D) 1/4
  - E) None of these

[View Answer](#)

**Option C**

**Solution:**

$$50\% \dots \dots \dots 20\%$$

$$\dots \dots \dots 30\%$$

10.....20

1 : 2

Both types of wine were in the ratio 1 : 2  
 Butt with alcohol of 50% strength = 1/3  
 So stole = 2/3 part

9. There are 65 students in a class. 39 rupees were distributed among them so that each boy gets 80 paisa and each girl gets 30 paisa. Find the number of girls in the class?
- A) 39  
 B) 26  
 C) 40  
 D) 30  
 E) 35

**View Answer****Option B****Solution:**

The average money received by every student =  $3900/65 = 60$  paisa

Boy	girl
80	30
...	60
30	20
3 : 2	
Girl = $2/5 * 65 = 26$	

10. A container has 40 l of milk. From this, 4 l of milk is taken out and replaced with water. Now 4 l of mixture is taken out and replaced with water again. Find how much quantity of milk is remaining in the container?
- A) 32.4 l  
 B) 32 l  
 C) 31.4 l  
 D) 31 l  
 E) 30.4 l

**View Answer****Option A****Solution:**

$4/10 = 1/10$  out so remaining =  $9/10$   
 The process is repeated 2 times, so multiply it 2 times and multiply it with total quantity also  
 $So (9/10)^2 * 40 = 32.4$  l

1. A container contains 80 Litre milk. From this container 8 Litre milk was taken out and replaced with water. This process was further repeated two times. How much milk is now contained in the container?
- A) 58.32 L  
 B) 57.32 L  
 C) 59.32 L  
 D) 56.32 L  
 E) 55.32 L

**View Answer****Option A****Solution:**

Remaining Quantity =  $x * (1 - y/x)^n$   
 where  $x$  = quantity of initial liquid = 80 here;  
 $y$  = quantity of newly added liquid = 8 here  
 $n$  = number of times the process is repeated = 3 here  
 $80 * (1 - 8/80)^3 = 58.32$  L

2. A trader sold two articles in Rs 800. On one he gained  $33(1/3)\%$  and on another he gained 20%. In this whole transaction he gained 25%. Find the cost price of the second article (the one sold at 20% gain)
- A) Rs 240  
 B) Rs 400  
 C) Rs 300  
 D) Rs 500  
 E) Rs 550

**View Answer****Option B****Solution:**

At 25% profit and SP = 800; CP = 640  
 $33(1/3) \quad 20$   
 $. \quad \quad \quad 25$   
 $5 \quad \quad \quad 25/3$   
 $3:5$  (by alligation)  
 hence CP of second article =  $5/8 * 640 = 400$

3. A mixture of certain quantity of milk with 20 Litre of water is sold at 80 paise per litre. If pure milk be worth Rs 1.20 per

litre. How much milk is present in the mixture?

- A) 20 L
- B) 25 L
- C) 30 L
- D) 40 L
- E) 35 L

**View Answer**

**Option D**

**Solution:** By alligation

$$\begin{array}{rcc}
 120 & 0 \\
 . & 80 \\
 80 & 40 \\
 \hline
 =>2:1 \\
 1=20 \text{ L} \\
 \text{hence } 2=40 \text{ L}
 \end{array}$$

4. In an alloy, zinc and copper are in the ratio 1:3. In the second alloy the same elements are in the ratio 2:3. If what proportion should the two alloys be mixed so as to form a new alloy in which zinc and copper are in the ratio 1:2.
- A) 5:4
  - B) 4:5
  - C) 5:6
  - D) 6:5
  - E) 2:3

**View Answer**

**Option B**

**Solution:**

$$\begin{array}{rcc}
 1/4 & 2/5 \\
 . & 1/3 \\
 1/15 & 1/12 \\
 \hline
 =>4:5
 \end{array}$$

5. 400 grams of sugar solution has 40% sugar in it. How much sugar should be added to make it 50% in the solution?
- A) 60 gm
  - B) 70 gm
  - C) 80 gm
  - D) 90 gm
  - E) 160 gm

**View Answer**

**Option C**

**Solution:**

40% of 400 = 160 gm  
 remaining = 240. This remaining quantity will remain constant as only sugar is to be added. For sugar to be 50%, the quantity of sugar should be equal to 240  
 hence more to be added = 240 - 160 = 80

6. A dishonest milkman professes to sell his milk at cost price, but he mixes it with water and thereby gains 33(1/3)%. The percentage of water in the mixture is?
- A) 20%
  - B) 33 (1/3) %
  - C) 25%
  - D) 30%
  - E) 35%

**View Answer**

**Option C**

**Solution:**

Ratio of water : milk can be found out as  
 Water: Milk = 33(1/3):100 = 1:3  
 hence water = 1/(1+4)\*100 = 25%

7. A person has a chemical of Rs 15 per litre. In what ratio should water be mixed in that chemical so that after selling the mixture at Rs 12/litre he may get a profit of 20%.
- A) 1:2
  - B) 2:1
  - C) 1:3
  - D) 3:1
  - E) 3:2

**View Answer**

**Option B**

**Solution:** With 20% profit, and SP=12,

CP=10

By alligation,

$$\begin{array}{rcc}
 15 & 0 \\
 10 \\
 10 & 5 \\
 \hline
 =>2:1
 \end{array}$$

8. If 2 kg of metal, of which  $\frac{1}{3}$  is zinc and the rest is copper be mixed with 3 kg of metal of which  $\frac{1}{4}$  is zinc and the rest is copper, What is the ratio of zinc to copper in the mixture?
- A) 2:3  
B) 3:2  
C) 43:17  
D) 17:43  
E) 15:17

**View Answer****Option D****Solution:**

$$\text{Zinc} = 2 \times \frac{1}{3} + 3 \times \frac{1}{4} = \frac{17}{12}$$

$$\text{Copper} = 5 - \frac{17}{12} = \frac{43}{12}$$

hence Z:C=17:43

9. A man has 90 pens. He sells some of these at a profit of 15% and the rest at 9% profit. On the whole transaction he gets a profit of 11%. How many pens did he sell at 9% profit?
- A) 60  
B) 50  
C) 40  
D) 70  
E) 30

**View Answer****Option A****Solution:**

$$\begin{array}{r} 15 \\ . \quad \quad \quad 9 \\ 2 \quad \quad \quad 4 \\ \hline \end{array}$$

$$\Rightarrow 1 : 2$$

hence pen at 9% profit =  $2/3 \times 90 = 60$

10. A butler stole wine from a butt of sherry which contained 35% spirit and he replaced what he had stolen by wine containing only 20% spirit. The butt was then 25% strong only. How much of the butt did he steal?
- A)  $\frac{1}{3}$   
B)  $\frac{2}{3}$   
C)  $\frac{3}{4}$   
D)  $\frac{1}{4}$

E) 1/2

**View Answer****Option B****Solution:**

$$35\% \quad \quad \quad 20\%$$

$$25\%$$

$$5 \quad \quad \quad 10$$

$$\Rightarrow 1:2$$

The butt with alcohol of  $35\% = \frac{1}{3}$  means butler stole  $1 - \frac{1}{3} = \frac{2}{3}$  part

1. A container contains some amount of milk. A milkman adds 200 ml of water for each one litre of milk in the container. 6 litres of the mixture is sold from the container and 10 litres of milk is added to the remaining mixture. If now the ratio of milk to water in container is 25 : 3, find the initial quantity of milk in the container.
- A) 26 l  
B) 29 l  
C) 30 l  
D) 20 l  
E) None of these

**View Answer****Option D****Solution:**

Let initial quantity of milk =  $10x$  litres, For each 1 litre, 200 ml of water is added, so after adding water, quantity of mixture become =  $12x$  litres

Now 6 l of mixture is sold, and 10 l of milk is added

So remaining quantity is  $(12x - 6 + 10) = (12x + 4)$

In this final quantity, milk =  $10x - (10x/12x * 6) + 10 = (10x + 5)$

$$\text{So } (10x+5)/(12x+4) = 25/(25+3)$$

Solve,  $x = 2$

So initial quantity of milk =  $10x = 20$  litres

2. A container contains 64 litres of pure milk. One-fourth of the milk is replaced by water. Again the operation is performed,

and one-fourth of mixture is replaced by water. Find the final ratio of milk to water in the container.

- A) 11 : 8
- B) 10 : 7
- C) 9 : 7
- D) 10 : 9
- E) 12 : 7

**View Answer**

**Option C**

**Solution:**

After 2 operations, final quantity of milk =  $64 (1 - 1/4)^2 = 36$  litres

So quantity of water is  $64 - 36 = 28$  l

So ratio is  $36 : 28 = 9 : 7$

3. In what ratio do the three varieties of rice costing Rs 6, Rs 8 and Rs 9 per 100 grams should be mixed in order to obtain a mixture costing Rs 84 per kg?
  - A) 2 : 3 : 4
  - B) 1 : 3 : 6
  - C) 1 : 2 : 5
  - D) 3 : 4 : 2
  - E) None of these

**View Answer**

**Option B**

**Explanation:**

Rs 6, Rs 8 and Rs 9 per 100 grams means

Rs 60, Rs 80 and Rs 90 per kg

84 is middle number between 80 and 90

So take ratios as:

$$\begin{array}{ll} 60 & \dots \dots \dots 90 \\ & \dots \dots \dots 84 \end{array}$$

$$\begin{array}{ll} 6 & \dots \dots \dots 24 \end{array}$$

Ratio is  $6 : 24 = 1 : 4$

AND

$$\begin{array}{ll} 80 & \dots \dots \dots 90 \\ & \dots \dots \dots 84 \end{array}$$

$$\begin{array}{ll} 6 & \dots \dots \dots 4 \end{array}$$

Ratio is  $6 : 4 = 3 : 2$

So final ratio is  $1 : 3 : (4+2) = 1 : 3 : 6$

4. Two containers A and B contain mixture of milk and water such that A contains 40%

milk and B contains 22% milk. Some part of mixture in container A is replaced by equal quantity of mixture from container B. How much quantity of the mixture was replaced if final mixture contains 32% milk?

- A) 3/7
- B) 2/5
- C) 7/10
- D) 4/7
- E) 5/9

**View Answer**

**Option E**

**Solution:**

By the method allegation:

Reaming.....	Replaced
22.....	40
.....32	

8.....	10
--------	----

So ratio is  $8 : 10 = 4 : 5$

So replaced part is  $5/(4+5) = 5/9$

5. A container filled of milk-water mixture contains 75% milk. 5 litres of this mixture is replaced by water. Next, 10 l of the mixture is replaced by water. If the final percentage of milk in the container is 54%, find the initial quantity of mixture in the container.
  - A) 50 l
  - B) 40 l
  - C) 60 l
  - D) 70 l
  - E) 55 l

**View Answer**

**Option A**

**Solution:**

Let initial quantity of mixture =  $x$  l

initial quantity of milk =  $0.75x$  l

So  $0.75x (1 - 5/x) (1 - 10/x) = 0.54 x$

Solve,  $(x-5)(x-10) = 18x^2/25$

Use options to check the answer.

6. How much milk (in litres) costing Rs 60 per litres should be mixed with 35 litres of

milk costing Rs 84 per litres so that there is a profit of 50% on selling the mixture at Rs 111 per litres?

- A) 25 l
- B) 32 l
- C) 17 l
- D) 36 l
- E) 46 l

**View Answer**

**Option A**

**Solution:**

CP of mixture =  $100/150 * 111 = \text{Rs } 74$   
Let x l of milk to be mixed. So by method of allegation:

$$\begin{array}{rcl} (x) & \dots & (35) \\ 60 & \dots & 84 \\ & \dots & 74 \\ 10 & \dots & 14 \end{array}$$

So ratio is  $10 : 14 = 5 : 7$   
 $\text{So } x/35 = 5/7$   
 $x = 25 \text{ l}$

7. A container whose capacity is 60 l contains milk and water in the ratio 3 : 2. How much quantity of the mixture should be replaced with pure milk so that in the final mixture, ratio of milk to water is 7 : 3?
- A) 22 l
  - B) 20 l
  - C) 15 l
  - D) 17 l
  - E) 14 l

**View Answer**

**Option C**

**Solution:**

In 60 l of mixture, milk =  $3/5 * 60 = 36 \text{ l}$ ,  
so water = 24 l

Let x litres of mixture is replaced

So

Remaining Milk after replacement is =  $36 - (3/5)*x + x = 36 + 2x/5$   
 $\text{So } (36 + 2x/5)/60 = 7/10$   
 $\text{Solve, } x = 15 \text{ l}$

8. 3 containers having capacities in the ratio 2 : 3 : 1 contain mixture of liquids A and B

such that the ratio of A to B in them is 2 : 3, 1 : 4 and 3 : 7 respectively. If all the three containers are emptied in a single container, what will be the ratio of A to B in the final mixture?

- A) 13 : 58
- B) 11 : 54
- C) 22 : 13
- D) 17 : 43
- E) None of these

**View Answer**

**Option D**

**Solution:**

$2+3 = 5, 1+4 = 5, 3+7 = 10$   
 $\text{LCM pf } 5, 5, 10 = 10$   
 Capacities are in the ratio 2 : 3 : 1  
 Suppose the capacities are 20, 30 and 10  
 $\text{So A in final mixture is } 2/5 * 20 + 1/5 * 30 + 3/10 * 10 = 17$   
 $\text{And B in final mixture is } (20+30+10) - 17 = 43$   
 $\text{So final ratio = } 17 : 43$

9. 12 litres of water is drawn out from a container full of water and replaced by milk. Again 12 litres of mixture are drawn and the container is again filled with milk. The ratio of final quantity of water to milk in the container is 11 : 25. How much did the container hold?
- A) 60 litres
  - B) 65 litres
  - C) 72 litres
  - D) 39 litres
  - E) None of these

**View Answer**

**Option C**

**Solution:**

Let x litres is total capacity of container  
 Using formula, amount of water left =  $x [1 - 12/x]^2$   
 $[1 - 12/x]^2/x = 25/(25+11)$   
 Solving we get,  $x = 72 \text{ l}$

10. There are two mixtures such that they contain 75% milk and 80% milk

respectively. Some amount from first mixture is mixed with twice the same amount of second mixture. Find the percentage of milk in the resultant mixture?

- A) 90.2%
- B) 75.9%
- C) 84.5%
- D) 76.3%
- E) 78.3%

**View Answer**

**Option E**

**Solution:**

Let  $x$  from first mixture, then  $2x$  form second

So milk from first =  $(75/100)*x$ , milk from second =  $(80/100)*2x$

So milk in resultant mixture is  $(75x/100) + (160x/100) = 2.35x$

Total mixture in third is  $x+2x = 3x$

So % of milk is  $(2.35x/3x)*100$

1. A 56 litre mixture contains milk and water in the ratio of 5 : 2 . How much water should be added to the mixture so as make the resultant mixture containing 40% water in it?
  - A) 35/6 l
  - B) 40/3 l
  - C) 29/3 l
  - D) 27/2 l
  - E) 32/3 l

**View Answer**

**Option E**

**Solution:**

In 56 l, milk =  $5/(5+2) * 56 = 40$  l, so water =  $56 - 40 = 16$  l

Final ratio of milk to water will be = 60 : 40 = 3 : 2

Let  $x$  litres of water to be added. So

$$40/(16+x) = 3/2$$

Solve,  $x = 32/3$  l

2. A mixture of 30 litres contains milk and water in the ratio 7 : 3. 10 litres of the mixture is taken out and replaced with pure

milk and the same operation is repeated one more time. Find the final ratio of milk to water in the mixture.

- A) 12 : 7
- B) 9 : 4
- C) 13 : 2
- D) 15 : 7
- E) 11 : 5

**View Answer**

**Option C**

**Solution:**

In 30 l of mixture, milk =  $7/10 * 30 = 21$  l, so water = 9 l

let  $x$  = amount of water after replacement and  $y$  = amount of water before replacement, so  $y = 9$

Now

$$x/y = [1 - 10/30]^2$$

Solve,  $x = 4$  l

Now since mixture is 30 l only after replacement also. So milk in mixture after replacement =  $30 - 4 = 26$  l

So final ratio = 26 : 4 = 13 : 2

3. How much milk (in litres) costing Rs 50 per litres should be mixed with 18 litres of milk costing Rs 56 per litres so that there is a profit of 25% on selling the mixture at Rs 65 per litres?
  - A) 25 l
  - B) 32 l
  - C) 17 l
  - D) 36 l
  - E) 46 l

**View Answer**

**Option D**

**Solution:**

CP of mixture =  $100/125 * 65 = \text{Rs } 52$

Let  $x$  l of milk to be mixed. So by method of allegation:

(x).....	(18)
50.....	56
.....	52
4.....	2
So $x/18 = 4/2$	
$x = 36$ l	

4. A 24 litres of milk and water mixture contains milk and water in the ratio 3 : 5. What litres of the mixture should be taken out and replaced with pure milk so that the final mixture contains milk and water in equal proportions?

- A)  $22/3$  l
- B)  $20/3$  l
- C) 3 l
- D)  $32/5$  l
- E)  $24/5$  l

**View Answer**

#### Option E

##### Solution:

In 24 l of mixture, milk =  $3/8 * 24 = 9$  l, so water = 15 l

Now since the mixture is to be replaced with pure milk, the amount of mixture will remain same after replacement too.

In 24 l mixture, to have 12 l water and 12 l milk, 3 l of water should be taken out, since we are only adding milk.

Let x l of mixture taken out. So  $5/8 * x = 3$ , Solve,  $x = 24/5$  l

5. 25 litres are drawn from a cask full of wine and is then filled with water. This operation is performed one more time. The ratio of the quantity of wine now left in cask to that of the water is 36 : 85. How much wine the cask hold originally?

- A) 66 l
- B) 85 l
- C) 59 l
- D) 55 l
- E) 46 l

**View Answer**

#### Option D

##### Solution:

Let x l wine was there originally. So

$$36/(36+85) = (1 - 25/x)^2$$

Solve,  $x = 55$  l

6. Out of 2100 kg wheat, some part is sold making 10% profit while the remaining part is sold making 16% profit. If there is an overall profit of 14%, what quantity was sold at 16% profit?

- A) 700 kg
- B) 1300 kg
- C) 1400 kg
- D) 1000 kg
- E) 1100 kg

**View Answer**

#### Option C

##### Solution:

By method of Alligation:

10.....	16
.....	14
(16-14).....	(14-10)
2.....	4
So 2 : 4 = 1 : 2	

so part at 16% profit =  $2/(1+2) * 2100 = 1400$  kg

7. Container A and B contains water and alcohol in the ratio 1 : 3 and 3 : 2 respectively. How much amount of mixture from container A should be mixed with 30 l of mixture from container B, so that the resultant mixture contains water and alcohol in the ratio 11 : 12?
- A) 26 l
  - B) 16 l
  - C) 22 l
  - D) 15 l
  - E) None of these

**View Answer**

#### Option B

##### Solution:

Water in A =  $1/4$ . Water in B =  $3/5$ . And in resultant =  $11/23$

So by allegation method:

(x).....	(30)
1/4.....	3/5
.....	11/23
14/(23*5).....	21/(23*4)
Take ratio: 14/23*5 : 21/23*4	
Gives 8 : 15	
So $x/30 = 8/15$	
Solve, $x = 16$ l	

8. The rice sold by a shopkeeper contains 15% low quality rice. What quantity of good quality rice should be added to 70 kg of rice so that percentage of low quality

wheat becomes 7%?

- A) 50 kg
- B) 40 kg
- C) 90 kg
- D) 60 kg
- E) 80 kg

[View Answer](#)

**Option E**

**Solution:**

In good quality rice, there is 0% low quality rice

So method of allegation:

$$\begin{array}{l} (70 \text{ kg}) \dots \dots \dots (x \text{ kg}) \\ 15\% \dots \dots \dots 0\% \\ \dots \dots \dots 7\% \end{array}$$

$$7 \dots \dots \dots 8$$

So 7 : 8

Gives  $70/x = 7/8$

Solve,  $x = 80 \text{ kg}$

9. Container A and B contains 25% and 50% water respectively. The rest is milk in both the containers. How much amount should be mixed from container A to some amount in to some amount of container B so as to get 12 litres of new mixture having water to milk ratio 3 : 5?

- A) 6 l
- B) 8 l
- C) 10 l
- D) 7 l
- E) 5 l

[View Answer](#)

**Option A**

**Solution:**

In resultant mixture, water is  $3/8 * 100 = 75/2\%$

So by method of allegation:

$$\begin{array}{l} 25\% \dots \dots \dots 50\% \\ \dots \dots \dots 75/2\% \end{array}$$

$$25/2\% \dots \dots \dots 25/2\%$$

so ratio is  $25/2 : 25/2 = 1 : 1$

And the total should be 12 l, so 6 l of mixture from A, and 6 l from B.

10. A mixture contains A and B in the ratio of 5 : 3. 16 litres of this mixture is taken out and 5 litres of A is poured in. the new

mixture has ratio of A to B as 11 : 6. Find the total original quantity of mixture.

- A) 80 litres
- B) 96 litres
- C) 98 litres
- D) 84 litres
- E) 92 litres

[View Answer](#)

**Option B**

**Solution:**

$$A = 5x, B = 3x$$

$$16 \text{ l taken out, so let total mixture now} = 5x + 3x + 16 = 8x + 16$$

Now 5 l of A poured in and then ratio becomes 11 : 6

$$\text{So } (5x+5)/3x = 11/6$$

Solve,  $x = 10$

$$\text{So total mixture originally} = 8x + 16 = 8*10 + 16 = 96 \text{ litres}$$

# 100+ PARTNERSHIP QUESTIONS WITH SOLUTION

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1. The investment of A is twice as that of B and thrice as that of C. B invested for twice the months than A and thrice the months than C. Who will earn the highest profit?
- A) B  
B) C  
C) A  
D) Both A and B  
E) Both B and C

**View Answer****Option D****Solution:**

Investment ratio 6:3:2

Month ratio 3:6:2

Then  $6*3 : 6*3 : 2*2$ 

18:18:4 ==&gt; 9:9:2

Both A and B gets equal and highest profits.

2. A, B and C start a business and their investments are in the ratio 4 : 3 : 6. Both A and B starts the business and C joins them after 6 months. It was decided that C will get a monthly salary of Rs 600 from the annual profits. C's total salary came out to be 10% of the annual profit after a year. What is the share of B in the total profits?
- A) Rs8500  
B) Rs9720  
C) Rs9650  
D) Rs10100  
E) None

**View Answer****Option B****Solution:**

C's monthly salary Rs600.

Then annual salary =  $600*6=3600$  (Because he work for 6 month only)

Rs3600 is 10% of total profit.

Then total profit is Rs36000.

Ratio of their shares  $4*12 : 3*12 : 6*6$   
 $=4:3:3$ 

Profit left after reducing salary of C =

$$36,000 - 3,600 = 32,400$$

$$B's \text{ share } 3/10 * 32400 = \text{Rs}9720.$$

3. A, B and C started a business where their initial capital was in the ratio of 4:5:6. At the end of 8 months, A invested an amount such that his total capital became half to C's initial capital investment. If the annual profit of B is Rs. 7500 then what is the total profit ?
- A) Rs22000  
B) Rs18000  
C) Rs20000  
D) Rs19500  
E) None

**View Answer****Option A****Solution:**

Initial Ratio 4:5:6

Now,  $4*8 + 3*4 : 5*12 : 6*12$  $44:5*12 : 6*12 ==> 11:15:18$ .

B's share is Rs7500

ie 15 7500

 $(11+15+18)44 ? ==> 22000$ 

4. P start a business with Rs. 10000, Q joins him after 2 month with 20% more investment than P, after 2 month R joins him with 40% less than Q. If the profit earned by them at the end of the year is equal to the twice of the difference between investment of P and ten times the investment of R. Find the profit of Q ?
- A) Rs35500  
B) Rs42000  
C) Rs38000  
D) Rs41100  
E) None

**View Answer****Option C****Solution:** $P : Q : R = (10000 \times 12) : (12000 \times 10) :$  $(7200 \times 8)$  $= 25 : 25 : 12$

Now the Profit =  $2 \times (72000 - 10000) = 124000$   
 Q's share  $25/62 \times 12400 = \text{Rs}50000$   
 Then profit of Q =  $50000 - 12000 = \text{Rs}38000$ .

5. M and N are partners in a firm out of which M is sleeping partner and N is working partner. M invests Rs. 1,80,000 and N invests Rs. 90,000. N receives 14.5% of profit for managing the business and the rest is shared between both in ratio of their investments. M's share in the profit of Rs. 24000 is ?  
 A) Rs10100  
 B) Rs11500  
 C) Rs12520  
 D) Rs13680  
 E) None

[View Answer](#)

#### Option D

##### Solution:

Profit received by N as working partner = 14.5% of Rs. 24000 = Rs. 3480  
 Balance in profit =  $24000 - 3480 = \text{Rs. } 20520$   
 Ratio of M and N = 1,80,000 : 90,000 ==> 2:1  
 Then M's share =  $\frac{2}{3} \times 20520$   
 2 ? Rs13680

6. Naveen and Kannan jointly started a business. Naveen invested four times as Kannan did and invested his money for double time as compared to Kannan. Kannan earned Rs. 5400. Then the total gain was ?  
 A) Rs45000  
 B) Rs48600  
 C) Rs52000  
 D) Rs55500  
 E) None

[View Answer](#)

#### Option B

##### Solution:

Investments ratio is = 4:1

Time period ratio is = 2:1  
 Gain ratio of Naveen and Kannan = 8:1  
 Kannan got Rs. 5400,  
 1 5400  
 9 ? ==> Rs48600  
 The total gain = Rs48600

7. A & B partner in a business , A contribute 1/4 of the capital for 15 months & B received 2/3 of the profit . For how long B's money was used  
 A) 8  
 B) 6  
 C) 10  
 D) 7  
 E) None

[View Answer](#)

#### Option C

##### Solution:

B received 2/3 of the profit  
 $A : B = 1 : 2$   
 Let the total capital = x  
 Then A's capital =  $x/4$   
 B's capital =  $x - x/4 = 3x/4$   
 If B's money was used for a months  
 $\text{Then } A:B = (x/4)*15 : (3x/4)*a = 1 : 2$   
 $15/4 : 3b/4 = 1 : 2$   
 $15 : 3b = 1 : 2$   
 $5 : b = 1 : 2$   
 $a = 5*2 = 10$

8. X, Y and Z enter into a partnership and theirs shares are in the ratio  $1/2 : 1/3 : 1/4$ . After two months, X withdraws half of his capital and after 10 months, a profit of Rs.420 is divided among them. What is Y's share?  
 A) Rs180  
 B) Rs165  
 C) Rs 160  
 D) Rs195  
 E) None

[View Answer](#)

#### Option C

##### Solution:

- Ratio of initial investments =  $1/2 : 1/3 : 1/4$   
 $= 6 : 4 : 3$ .  
 Let their initial investments be  $6x$ ,  $2x$  and  $3x$  respectively.  
 $\text{Ratio } (6x * 2) + (3x * 10) : (4x * 12) : (3x * 12)$   
 $= 42 : 48 : 36 \Rightarrow 7 : 8 : 6$ .  
 $B's \text{ share} = 420 * 8/21 = \text{Rs. } 160$ .
9. If  $8(P's \text{ Capital}) = 10(Q's \text{ Capital}) = 12(R's \text{ Capital})$ , then out of the total profit of Rs 2590, R will receive ?  
 A) Rs. 740  
 B) Rs. 630  
 C) Rs. 840  
 D) Rs. 730  
 E) None
- View Answer
- Option C**  
**Solution:**  
 $8p = 10q = 12r$   
 $4p = 5q = 6r$   
 $q = 4p/5$   
 $r = 4p/6 = 2p/3$   
 $P : Q : R = p : 4p/5 : 2p/3$   
 $15:12:10$   
 $R's \text{ share} = 2590 * (12/37) = 70 * 12 = \text{Rs. } 840$ .
10. P and Q invested in a business. They earned some profit which they divided in the ratio of 2:3. If P invested Rs.30000, the amount invested by Q is  
 A) Rs 40000  
 B) Rs 35000  
 C) Rs 45000  
 D) Rs 50000  
 E) None

View Answer

**Option C****Solution:**

$$30,000:Q = 2:3$$

$$Q = 90,000/2 = 45,000$$

1. Sam and Suresh start a business with investments of Rs. 5000 and Rs. 3000 respectively. After 2 months, Sam takes out Rs.2000 from his capital. After 1 more month, Suresh takes out Rs.2000 of his capital while Sunil joins them with a capital of Rs. 6000. At the end of 9 months from the start, they earn a total profit of Rs. 4920. Which of the following is the share of each member respectively in the profit?  
 A) Rs. 1860, Rs. 900, Rs. 2160  
 B) Rs. 15000, Rs. 850, Rs. 2300  
 C) Rs. 1650, Rs. 800, Rs. 1895  
 D) Rs. 1700, Rs. 860, Rs. 2150  
 E) None of these

View Answer

**Option A****Solution:**

Their investing ratio:  
 $(5000*2 + 3000*7) : (3000*3 + 1000*6) : (6000*6)$   
 $= (30000):(15000):(36000) = 31:15:36$   
 Total profit for 9 months = Rs.4920  
 $\text{Therefore, } (31+15+36)/82 = 4920$   
 Sam's share  $31/82 = \text{Rs. } 1860$   
 Suresh's share  $15/82 = \text{Rs. } 900$   
 Sunil's share  $36/82 = \text{Rs. } 2160$

2. Edwin started a business with Rs.25000 and after 4 months, Thomas joined him with Rs.60000. Edwin received Rs.58000 including 10% of profit as commission for managing the business. What amount did Thomas receive?.  
 A) Rs 80,000  
 B) Rs 72,000  
 C) Rs 65,000  
 D) Rs 82,000  
 E) None

View Answer

**Option B****Solution:**

Profit sharing ratio is  
 $25000*12 : 60000*8 = 5:8$   
 Total profit 100%

Edwin got 10% for Managing the business so remaining 90% is shared by both.

Edwin got 10% profit +  $5/13 * 90\%$  profit  
 $0.1p + 5/13 * (0.9p) = 58,000$

Then  $5.8p/13 = 58000 \Rightarrow p = 1,30,000$ .

Now Thomas profit is  $1,30,000 - 58,000 = 72,000$ .

3. P, Q and R start a business with Rs30,000, Rs40,000 Rs50,000 respectively. P stays for the entire year. Q leaves the business after two months but rejoins after another 4months but only  $3/4$  of his initial capital. R leaves after 3 months and rejoins after another 5months but with only  $4/5$  of his capital. If the year end profit is Rs 27,900, how much more than Q did R get?
- A) Rs1500
  - B) Rs9300
  - C) Rs3100
  - D) Rs12,400
  - E) None

**View Answer**

**Option A**

**Solution:**

Their ratio's  $30000*12$ :

$(40000*2+30000*6) : (50000*3+40000*4)$

$36:26:31$

Total profit is Rs 27900

Then  $(36+26+31) 93 = 27900$

Diff of Q-R  $(31-26) 5 ? \Rightarrow$  Rs1500

4. A starts a business with Rs.40,000. After 2 months, B joined him with Rs.60,000. C joined them after some more time with Rs.1,20,000. At the end of the year, out of a total profit of Rs.3,75,000, C gets Rs.1,50,000 as his share. How many months after B joined the business, did C join?
- A) 5
  - B) 8
  - C) 6
  - D) 10
  - E) None

**View Answer**

**Option C**

**Solution:**

$40000 \times 12 : 60000 \times 10 : 120000 \times x = 40$

$\times 12 : 60 \times 10 : 120 x = 40 : 5 \times 10 : 10x = 8$

$: 10 : 2x = 4 : 5 : x$

C's share  $375000x/(9+x) = 150000$

$375x/(9+x) = 150$

$X=6$

5. M started a business with Rs.25,000. N joined him after 4 months with Rs20,000. After 2 more months, M withdrew Rs.10,000 of his capital and 2 more months later, N brought in Rs.10,000 more. What should be the ratio in which they should share their profits at the end of the year?
- A) 2:3
  - B) 5:6
  - C) 4:7
  - D) 5:4
  - E) None

**View Answer**

**Option D**

**Solution:**

Their Ratio's

$(25000 \times 6 + 15000 \times 6) : (20000 \times 4 + 30000 \times 4)$

$150+90:80+120=240:200=5:4$

6. A, B, C started a business with their investments in the ratio 3:6:5. After 8 months, A invested the same amount as before and both B and C withdrew half of their investments. The ratio of their profits at the end of the year is:
- A) 22:30:24
  - B) 18:30:25
  - C) 16:18:22
  - D) 20:15:18
  - E) None

**View Answer**

**Option B**

**Solution:**

Investments:  $3x, 6x, 5x$

$$\begin{aligned} A:B:C &= 3x \cdot 8 : 3x \cdot 4 : 6x \cdot 8 + (6x/2) \cdot 4 \\ &= 5x \cdot 8 + (5x/2) \cdot 4 \\ A:B:C &= 18:30:25 \end{aligned}$$

7. Three friends A, B, C invested in a business in the ratio of 4:5:6. After 6 months C withdraw half of his capital. If the sum invested by A is 48000, then the profit earned by C out of the total profit of 60000.
- A) 20000  
B) 30000  
C) 25000  
D) 32000  
E) None

**View Answer****Option A****Solution:**

sum invested by A =  $4x = 48000$ .

$$X = 12000$$

Investment made by A, B, C = 48000, 60000, 72000

Ratio in which the profit will divide-  
 $48000 \cdot 12 : 60000 \cdot 12 : 72000 \cdot 6 + 36000 \cdot 6$

i.e 8:10:9. So C share =  $(9/27) \cdot 60000 = 20000$

8. M and N invested in a business in which M invest 250 rupee more than N. N invested for 6 months while M invested for 4 months. If M get 200 more than N out of a total profit of 1000. Then the total amount invested in the business.
- A) 550  
B) 650  
C) 750  
D) 850  
E) None

**View Answer****Option B****Solution:**

Let N invest 'x' rupees so M will invest  $(x+250)$

Total investment made by M =  $(x+250) \cdot 4$   
and by N =  $6x$

$$\begin{aligned} \text{According to the problem- } & [[4(x+250) - 6x]/(1000+10x)] \cdot 1000 = 200. \\ X &= 200. \text{ Total investment} = 200+250+200 \\ &= 650 \end{aligned}$$

9. A, B and C enter into a partnership with a capital in which A's contribution is Rs. 15,000. If out of a total profit of Rs. 1000, A gets Rs. 500 and B gets Rs. 300, then C's capital is :
- A) 4000  
B) 5000  
C) 6000  
D) 7000  
E) None

**View Answer****Option C****Solution:**

$$A : B : C = 500 : 300 : 200 = 5 : 3 : 2.$$

Let their capitals be  $5x$ ,  $3x$  and  $2x$  respectively.

$$\text{Then, } 5x = 15000$$

$$\Rightarrow x = 3000.$$

$$C's \text{ capital} = 2x = \text{Rs. 6000.}$$

10. A, B, C rent a pasture. A puts 15 cows for 6 months, B puts 20 cows for 4 months and C puts 10 cows for 8 months for grazing. If the rent of the pasture is Rs. 500, how much must A pay as his share of rent?
- A) 200  
B) 250  
C) 300  
D) 180  
E) None

**View Answer****Option B****Solution:**

$$A:B:C = (15 \cdot 6) : (20 \cdot 4) : (10 \cdot 8) = 9:8:8$$

$$A's \text{ rent} = (9/25) * 500 = \text{Rs. 180}$$

1. Radhika started a workshop with an investment of Rs.40,000. She invested additional amount of Rs.10,000 every year. After two years her sister Rama joined her with an amount of Rs.85,000. Therefore, Rama did not invest any additional amount. On completion of 4 years from the opening of workshop they earned an amount of Rs.1,95,000. What will be Radhika's share in the earning ?
- A) Rs.2,20,000  
 B) Rs.1,10,000  
 C) Rs.2,45,000  
 D) Rs.3,35,120  
 E) Rs.1,01,5000

**View Answer****Option B****Solution:**

Investment of Radhika = Rs. 40,000 +Rs. 50,000 +Rs. 60,000+Rs. 70,000 = Rs. 2,20,000

Investment of Rama = 85,000 \* 2 = Rs. 1,70,000

Ratio = 22 : 17

Radhika's share =  $(22/39) * 1,95,000 =$   
Rs.1,10,000

2. P ,Q and R are partners in a business .P whose money has been used for 4 months , claims  $(1/8)$  of the profit , Q whose money has been used for 6 months ,claims at  $(1/3)$  of the profit . R had invested Rs. 1560 for 8 months .How much did P and Q contribute ?
- A) Rs.720, Rs.1280  
 B) Rs.650, Rs.1100  
 C) Rs.758, Rs.1500  
 D) Rs.800, Rs.1720  
 E) Rs.870, Rs.1750

**View Answer****Option A****Solution:**

$$\begin{array}{l} P : Q : R \\ [(960*3)/4] : [(960*8)/6] : [(1560*8)/13] \\ = 720 : 1280 : 960 \end{array}$$

3. There are two persons invests Rs.1,15,000 and Rs.1,00,000 resp. in a project and agree

that 50% of the profit should be divided equally between them and the remaining is to be treated as interest on the capital. If first person get Rs.500 more than the second person. What is the total profit made in the business ?

- A) Rs.1780.22  
 B) Rs.15445.12  
 C) Rs.21245  
 D) Rs.14333.33  
 E) Rs.14758.41

**View Answer****Option D****Solution:**

Ratio of the profit = 23:20

Therefore,

$$500 * (100/50) * [(23+20)/(23-20)] = 14333.33$$

4. Ramesh, Suresh and Mahesh started a business with the investment in the ratio 5:8:10 resp. After 1 year Mahesh withdraw 50% of his capital and Ramesh increased his capital by 80% of his investment . After 2 years in what ratio should the earned profit be distributed among Ramesh ,Suresh and Mahesh?
- A) 15:10:17  
 B) 14:16:15  
 C) 11:15:19  
 D) 8:13:7  
 E) 10:15:14

**View Answer****Option B****Solution:**

$$\begin{array}{l} \text{Ramesh :Suresh:Mahesh} \\ [(5x*12)+(9x*12)]:(8x*24):[(10x*12)+(3x*12)] = 14:16:15 \end{array}$$

5. Prabhu initiated his business with  $(1/2)$  of the total capital for  $(1/4)$ th of the time . His brother Sunny invests  $(1/3)$  of the capital for  $(1/2)$ th of the time and Prabhu's friend Tarun invests the remaining capital for the whole time. Find the share of Tarun in the total profit of Rs. 1,21,000.
- A) Rs.20,000  
 B) Rs.24,500

- C) Rs.50,000  
D) Rs.33,420  
E) Rs.44,000

**View Answer**

**Option E**

**Solution:**

Tarun's contribution in the business =  $1 - [(1/2)+(1/3)] = 1/6$

Prabhu's share : Sunny's share : Tarun's share

$$(1/4)*(1/2):(1/2)*(1/3):(1/6)*1$$

3:4:4

Tarun's share in profit =  $(4/11)*1,21,000 = \text{Rs.}44,000$

6. A ,B and C sharing profits in the ratio 3:2:2 . B retired from the company and A and C decide to share profits in the ratio 3:2.What is the gaining ratio?  
 A) 5:3  
 B) 4:5  
 C) 3:2  
 D) 2:1  
 E) 3:5

**View Answer**

**Option C**

**Solution:**

Gaining ratio =  $[(3/5)-(3/7)] : [(2/5)-(2/7)] = 3 : 2$

7. Rs.61,105 ,is divided between Ram and Raman in the ratio 3 : 8 .What is the difference between thrice the share of Ram and twice the share of Raman?  
 A) Rs.52,500  
 B) Rs.42,000  
 C) Rs.35,720  
 D) Rs.38,885  
 E) Rs.47,200

**View Answer**

**Option D**

**Solution:**

Required difference =  $[(8/11)*2 - (3/11)*3] * 61,105 = (7/11)*61,105 = \text{Rs. }38,885$

8. Mr. X started a business investing Rs.25,000 in 1996.In 1997 he invested an additional amount of Rs. 10,000 and Mr. Y joined him with an amount of Rs.35,000.In 1998 , Mr.X invested another additional amount of Rs.10,000 and Mr. Z joined them with an amount of Rs. 35,000 .Find the share of Mr. Y in the profit of Rs. 1,50,000 earned at the end of 3 years from the start of the business in 1996?  
 A) Rs.50,000  
 B) Rs.80,000  
 C) Rs.70,000  
 D) Rs.40,000  
 E) Rs.60,000

**View Answer**

**Option A**

**Solution:**

Mr. X : Mr. Y : Mr. Z

$$[(25000*3)+(10000*2)+(10000*1)] :$$

$$(35000*2) : (35,000*1)$$

$$105000 : 70000 : 35000$$

3 : 2 : 1

Mr. Y's share in the profit =  $(2/6)*1,50,000 = \text{Rs. }50,000$

9. A starts a business with an initial investment of Rs. 30,000. After 6 months , B enters into the partnership with an investment of Rs. 20,000.Again after 3 months C enters with an investment of Rs.50,000.If C receives Rs. 2000 in the profit at the end of the year ,what is the total annual profit?  
 A) Rs.7000  
 B) Rs. 8400  
 C) Rs.8000  
 D) Rs.9000  
 E) RS.8500

**View Answer**

**Option B**

**Solution:**

A, B and C's equivalent capitals

A : B : C

$$(30,000*12) : (20,000*6) : (50,000*3)$$

12 : 4 : 5

C's profit =  $5x/12 = 2000$

$$\Rightarrow x = 8,400$$

10. Riya started a project by investing Rs. 60,000. 6 months later her sister Raima joins her by investing Rs. 1,00,000. At the end of 1 year from the commencement of the business ,they earn a profit of Rs.27,038.Find Raima's share in the profit?
- A) Rs.14,150  
B) Rs.13,100  
C) Rs.13,560  
D) Rs.12,290  
E) Rs.12,510

**View Answer****Option D****Solution:**

$$\begin{aligned} \text{Riya and Raima's capital in the ratio} \\ &= (60,000*12) : (1,00,000*6) \\ &= 5 : 6 \\ \text{Therefore ,Raima's share in the profit} &= \\ &(5/11)*27,038 = 12,290 \end{aligned}$$

1. Kartik, Bhuvan and Sid entered into a partnership and invested Rs 13,000, Rs 16,000 and Rs 19,000 respectively. After 7 months, Kartik and Bhuvan added Rs 1,000 and Rs 5,000 respectively while Sid withdrew Rs 5,000. If at the end of year their annual profit is Rs 43,160, find the total profit share of Kartik and Sid.
- A) Rs 28,030  
B) Rs 27,190  
C) Rs 26,830  
D) Rs 28,420  
E) Rs 27,040

**View Answer****Option E****Solution:**

$$\begin{aligned} \text{Karti : Bhuvan : Sid} \\ 13000*7 + 14000*5 : 16000*7 + 21000*5 : \\ 19000*7 + 14000*5 \\ 23 : 31 : 29 \\ \text{So required share} = (23+29)/(23+31+29) * \\ 43160 = \text{Rs } 27,040 \end{aligned}$$

2. Megha, Isha and Rani entered into a partnership by investing Rs 20,000, Rs X, and Rs 22,000 respectively for 6 months, 8

months and 10 months respectively. If Isha earns a profit of Rs 16500 out of a total profit of Rs 44,550, find the total investment done by all three.

A) Rs 47,000  
B) Rs 25,000  
C) Rs 54,000  
D) Rs 39,000  
E) Rs 67,000

**View Answer****Option E****Solution:**

$$\begin{aligned} \text{Megha : Isha : Rani} \\ 20000*6 : X*8 : 22000*10 \\ 30000 : 2X : 55000 \\ 15000 : X : 27500 \\ \text{So } X/(15000+X+27500) * 44550 = 16500 \\ \text{Gives } X/(15000+X+27500) * 270 = 100 \\ \text{Solve, } X = 25,000 \\ \text{So total investment} = 20+25+22 = 67,000 \end{aligned}$$

3. Kamya, Prisha and Tisha started a business by investing Rs X, Rs (X+400) and Rs (X-200). If after the end of year, total share of profit of Kamya and Tisha is Rs 8100 out of a total profit of Rs 13,500, find the profit share of Prisha.
- A) Rs 6100  
B) Rs 5400  
C) Rs 5100  
D) Rs 6600  
E) Rs 5500

**View Answer****Option B****Solution:**

$$\begin{aligned} \text{Kamya : Prisha : Tisha} \\ X : (X+400) : (X-200) \\ \text{So } (X+X-200)/(X + X+400 + X-200) * \\ 13500 = 8100 \\ \text{Solve, } X = 1600 \\ \text{So ratio of profit share is} \\ 1600 : 2000 : 1400 = 8 : 10 : 7 \\ \text{So profit share of Prisha} = 10/25 * 13500 = \\ \text{Rs } 5400 \end{aligned}$$

4. Preeti, Anu and Aarti entered into a business. Preeti invested Rs 2500 for some months, Anu invested Rs 3000 for 2 more

months than Preeti and Aarti invested Rs 3500 for 3 months less than Anu. If Anu got Rs 8400, out of a total profit of Rs 19,000, then Aarti invested her money for how many months?

- A) 3 months
- B) 5 months
- C) 4 months
- D) 6 months
- E) 2 months

**View Answer**

#### Option C

#### Solution:

Preeti : Anu : Aarti

$$25000*x : 3000*(x+2) : 3500*(x-1)$$

$$5x : 6(x+2) : 7(x-1)$$

$$\text{So } (6x+12)/(5x + 6x+12 + 7x-7) * 19000 = 8400$$

$$\text{Solve, } x = 5$$

So Aarti invested money for 4 months

**Directions (5-7):** A, B and C started a business by investing Rs 800, Rs 1600 and Rs 2000 respectively. After a quarter they invested amounts in a ratio 1 : 4 : 2. After another quarter, they invested amounts in ratio 3 : 2 : 3. In the last quarter the ratio of investments was same as in 2<sup>nd</sup> quarter. Also in the last quarter, the respective amounts of A, B and C was double than the respective amounts invested in 2<sup>nd</sup> quarter. The total investment of C before 4<sup>th</sup> quarter was Rs 1400 more than that of A during same duration. Also ratio of B's share in profit to total profit at the end of year was 66 : 153.

5. Find the total investment of A, B and C.
- A) Rs 10,200
  - B) Rs 11,300
  - C) Rs 9,800
  - D) Rs 10,080
  - E) Rs 11,090

**View Answer**

#### Option A

#### Solution:

Quarters means 3 months each

Ratio of investments in 2<sup>nd</sup> quarter – 1 : 4 : 2, so let amounts – x, 4x, 2x

Ratio of investments in 3<sup>rd</sup> quarter – 3 : 2 : 3, so let amounts – 3y, 2y, 3y

In last quarter, respective amount is double then in 2<sup>nd</sup> quarter, so amounts – 2x, 8x, 4x

**In the last quarter the ratio of investments was same as in 2<sup>nd</sup> quarter.**  
— this is not required to solve question.

Given:

$$(2000 + 2x + 3y) = 1400 + (800+x+3y)$$

$$\text{Solve, } x = \text{Rs } 200$$

$$\text{Now ratio of profit share —A : B : C is } 800*3 + x*3 + 3y*3 + 2x*3 : 1600*3 + 4x*3 + 2y*3 + 8x*3 : 2000*3 + 2x*3 + 3y*3 + 4x*3$$

3 gets cancelled, gives

$$(800+3x+3y) : (1600+12x+2y) :$$

$$(2000+6x+3y)$$

$$\text{Put } x = 200 \text{ gives}$$

$$1400+3y : 4000+2y : 3200+3y$$

Now given

$$(4000+2y)/(1400+3y + 4000+2y + 3200+3y) = 66/153$$

$$(2000+y)/(4300+4y) = 22/51$$

$$\text{Solve, } y = \text{Rs } 200$$

So now the total investment is—

$$(800+3x+3y) + (1600+12x+2y) + (2000+6x+3y) = (4400 + 21x + 8y)$$

put x = 200, y = 200, total investment = Rs 10,200

6. If they respectively had invested same amounts in each quarter after quarter 1 which is equal to their respective investments in quarter 1, then what would be the profit of A at the end of year out of a total profit of Rs 19,350?
- A) Rs 2510
  - B) Rs 3320
  - C) Rs 2560
  - D) Rs 3150
  - E) None of these

**View Answer**

#### Option D

#### Solution:

800, 1600, 2000 as it is for 3 months, and then for next 9 months x, 4x and 2x

So ratio of profit share – A : B : C is

$$800*3 + 200*9 : 1600*3 + 800*9 : 2000*3 + 400*9$$

7 : 20 : 16

So profit share of A =  $7/43 * 19350$  = Rs 3150

7. If the respective investments in third quarter was changed and this was in ratio 2 : 4 : 1 (other investments being the same), then what would be the total investment of all three in third quarter, if the average investment of all A B and C was Rs 3100 for whole year?
- Rs 700
  - Rs 800
  - Rs 500
  - Rs 900
  - None of these

[View Answer](#)

#### Option A

**Solution:**

New investments – 3z, 2z, and 2z

Investment of A =  $(800+3x+2z)$ , B =  $(1600+12x+4z)$  and C =  $(2000+6x+1z)$

Put x = 200

A = 1400+2z, B = 4000+4z, C = 3200+1z

Now given  $(1400+2z + 4000+4z + 3200+1z)/3 = 3100$

Solve, z = Rs 100

So total investment for quarter 3 =  $2z+4z+z = 7z = \text{Rs } 700$

**Directions (8-10):** A, B and C started a business. They invested amounts in the ratio 1 : 3 : 2 respectively for 8 months. After this they invested amounts in ratio 2 : 3 : 4 respectively for 4 months. The average investment of A and B is Rs 2800 while average investment of B and C is Rs 3800.

8. Find the total investment of C?
- Rs 4000
  - Rs 5000
  - Rs 6000
  - Rs 4500
  - Rs 3500

[View Answer](#)

#### Option A

**Solution:**

A : B : C is

$x*8 + 2y*4 : 3x*8 + 3y*4 : 2x*8 + 4y*4$   
gives  $(2x+2y) : (6x+3y) : (4x+4y)$

**Given::**

$$(x+2y+3x+3y)/2 = 2800$$

$$4x+5y = 5600$$

$$\text{Also } (3x+3y+2x+4y)/2 = 3800$$

$$5x+7y = 7600$$

Solve both equations, x = 400, y = 800

So total investment of C =  $(2x+4y) = \text{Rs } 4000$

9. If B's investment for both the terms (4 months and 8 months) was swapped, then find the total profit share of B and C if annual profit is Rs 46,200.
- Rs 45,600
  - Rs 32,800
  - Rs 43,600
  - Rs 37,800
  - None of these

[View Answer](#)

#### Option D

**Solution:**

B's investment for 8 months =  $3x = 3*400 = \text{Rs } 1200$  and for 4 months =  $3y = 3*800 = \text{Rs } 2400$

Now swapped, means for 8 months = Rs 2400 and for 4 months is Rs 1200

So now ratio of A : B : C is

$$400*8 + 1600*4 : 2400*8 + 1200*4 : 800*8 + 3200*4$$

$$2 : 5 : 4$$

So required profit =  $(5+4)/(2+5+4) * 46200 = \text{Rs } 37,800$

10. If A's share in annual profit is Rs 9030, find the total profit after a year.

- Rs 41,390
- Rs 45,150
- Rs 42,610
- Rs 46,240
- Rs 43,170

[View Answer](#)

#### Option B

**Solution:**

Ratio of profit share is

$$(2x+2y) : (6x+3y) : (4x+4y)$$

$$x = 400, y = 800$$

So ratio becomes

1 : 2 : 2

So  $1/5 * x = 9030$

Total profit =  $x = \text{Rs } 45,150$

- A and B enter into a partnership with capitals in the ratio 7:8 and at the end of 8 months A withdraws. If they receive profits in the ratio of 7:11 find how long B's capital was used?  
 A) 8 months  
 B) 9 months  
 C) 11 months  
 D) 12 months  
 E) None of these

**View Answer**

**Option C**

**Solution:**

A : B

7 : 8

8 : x (time)

$$7*8 : 8*x = 7 : 11$$

$$56/8x = 7/11$$

$$x = 11$$

- A began a business with Rs 12,000 and was joined afterwards by B with Rs 8,000. After how many months did B join if the profits at the end of the year were divided in the ratio 3:1?  
 A) 5 months  
 B) 6 months  
 C) 7 months  
 D) 8 months  
 E) None of these

**View Answer**

**Option B**

**Solution:**

$$12000*12 : 8000*(12-x) = 3 : 1$$

$$\text{solve } x = 6 \text{ months}$$

- Two partners invest Rs 120000 and Rs 84000 in a business and agree that 70% of

the profit should be divided equally between them and the remaining profit is to be treated as interest on capital. If one person gets Rs 900 more than the other then find the total profit made in the business.

- A) Rs 17,000
- B) Rs 20,000
- C) Rs 5,100
- D) Rs 18,000
- E) None of these

**View Answer**

**Option S**

**Solution:**

$$\begin{aligned} 120000*1 &: 84000*1 \\ 10:7 &(\text{difference} = 3) \\ 3 &= 900 \\ 1 &= 300 \\ 17 &= 5100 ; \text{this is } 30\% \\ 100\% &= 5100 * 100/30 = 17,000 \end{aligned}$$

- A,B and C enter into a partnership with Rs 4000, Rs 6000 and Rs 8000 respectively. After 4 months A withdrew 25% and after 6 months B add 16(2/3)% and after 8 months C withdrew 25%, find the profit earned by A if they get a total profit of Rs 7500 after 1 year.  
 A) Rs 1000  
 B) Rs 2000  
 C) Rs 3000  
 D) Rs 4000  
 E) None of these

**View Answer**

**Option B**

**Solution:**

$$\begin{array}{rccccc} A & : & B & : & C & : \\ 4000*4 & & 6000*6 & & & \\ 8000*8 & & & & & \\ (4000- & & & & & \\ 1000)*8 & & (6000+1000)*6 & & & (8000- \\ 2000)*4 & & & & & \\ = 40000 : 78000 : 32000 & & & & & \\ 20:39:16 & & & & & \end{array}$$

$$A = 20/(20+39+16) * 7500 = 2000$$

5. A starts a business with Rs 25000. After few months B join him with Rs 20000. If the ratio of their profit after 1 year is 15:8 find after how many months B joined A?
- A) 2 months  
 B) 6 months  
 C) 4 months  
 D) 8 months  
 E) None of these

[View Answer](#)

#### Option C

**Solution:**

$$25000*12 : 20000(12-x)$$

$$15 : 8$$

solve and get  $x=4$  months

6. A invests with B some rupees and B invested Rs 25,000. After 4 months A increase his investment with Rs 6000. If at the end of the year A and B have a profit of Rs 2400 and Rs 2500 respectively, find the sum invested by A.
- A) Rs 15000  
 B) Rs 30000  
 C) Rs 25000  
 D) Rs 20000  
 E) None of these

[View Answer](#)

#### Option D

**Solution:**

$$[x*4 + (x+6000)*8]/(25000*12)=24/25$$

solve and get  $x=$  Rs 20000

7. Ram and Shyam invested Rs 5000 and Rs 7000 respectively. If Ram increases Rs 1000 after every 4 months find the ratio of their profit after 1 year.
- A) 7 : 6  
 B) 6 : 7  
 C) 5 : 6  
 D) 6 : 5  
 E) None of these

[View Answer](#)

#### Option B

**Solution:**

$$\begin{array}{lcl} A & : & B \\ 5000*4 & : & 7000*12 \\ +6000*4 & & \\ +7000*4 & & \\ =72000 : 84000 & & \\ 6 : 7 & & \end{array}$$

8. In a partnership A invest 1/6 of the capital for 1/6 of the time. B invest 1/3 capital for 1/3 time and C invest the remaining capital for whole time. If at the end of the year the profit earned is Rs 23000, Then what will be the share of B?
- A) Rs 4000  
 B) Rs 5000  
 C) Rs 6000  
 D) Rs 4500  
 E) None of these

[View Answer](#)

#### Option A

**Solution:**

$$\text{Let total capital}=18$$

$$A=1/6*18 *1/6*12=6$$

$$B= 1/3*18*1/3*12=24$$

$$C=9*12=108$$

$$A:B:C=1:4:18$$

$$B=4/23*23000=4000$$

9. Sumit and Anu invested money in the ratio of 8:12, find for how much time anu invested the money if Sumit invested money for 9 months and he got Rs 1000 from a total profit of Rs 3000?
- A) 9 months  
 B) 10 months  
 C) 11 months  
 D) 12 months  
 E) None of these

[View Answer](#)

#### Option D

**Solution:**

Sumit : Anu

$$8*9 : 12*x$$

$$72:12x$$

$$\text{Profit} = 1000:2000 = 1:2$$

$$72/12x = 1/2$$

$$x=12$$

10. A and B invested Rs 1200 and Rs 1500 respectively in a business. After 8 months A withdrew his entire money and C joined them with Rs 2000. If after a year, a total of Rs 1780 is obtained as a profit, find the total share of B and C?
- A) Rs 1300
  - B) Rs 1280
  - C) Rs 880
  - D) Rs 980
  - E) None of these

[View Answer](#)

#### Option A

**Solution:**

$$\begin{array}{ccc} A & : & B & : & C \\ 1200*8 & : & 1500*12 & : & 2000*4 \\ = 24:45:20 \\ B+C = 65/89*1780 \end{array}$$

1. Antra and Manvi invested Rs 3780 and Rs 3960 in a business. After 3 months, Antra withdrew Rs 420 and Manvi withdrew Rs 180. At the same time Chetna joined them by investing Rs 4620. After a year, they made a profit of Rs 35,850. Find Manvi's share in the annual profit.
- A) Rs 13,450
  - B) Rs 12,750
  - C) Rs 12,350
  - D) Rs 13,650
  - E) Rs 13,950

[View Answer](#)

#### Option B

**Solution:**

$$\begin{array}{l} \text{Ratio of shares of Antra : Manvi : Chetna is} \\ 3780*3 + 3360*9 : 3960*3 + 3780*9 + \\ 4620*9 \end{array}$$

$$77 : 85 : 77$$

$$\text{So Manvi's share} = 85/(77+85+77) *$$

$$35850 = \text{Rs } 12,750$$

2. Shikha and Shreya invested in the ratio 7 : 8 in a business. They got an annual profit of Rs 34,450. If Shikha withdrew her entire money at the end of 9 years, then what is the difference between their shares of profit?
- A) Rs 7570
  - B) Rs 6400
  - C) Rs 7560
  - D) Rs 7150
  - E) Rs 8180

[View Answer](#)

#### Option D

**Solution:**

Ratio of shares of profit of Shikha : Shreya is

$$7*9 : 8*12$$

$$21 : 32$$

$$\begin{array}{l} \text{So difference in shares} = (32-21)/(21+32) * \\ 34450 = \text{Rs } 7150 \end{array}$$

3. Kashish and Sheena started a business by investing Rs 2600 and Rs 2400 respectively. After 7 months, they added Rs 600 and Rs 800 respectively. 33% of the total profit earned after a year is given in donation. If after giving donation, the difference between the shares of Kashish and Sheena is Rs 350, find the total profit earned after a year.
- A) Rs 17,000
  - B) Rs 25,000
  - C) Rs 18,000
  - D) Rs 12,000
  - E) Rs 27,000

[View Answer](#)

#### Option B

**Solution:**

$$\begin{array}{l} \text{Ratio of shares of profit of Kashish :} \\ \text{Sheena is} \\ 2600*7 + 3200*5 : 2400*7 + 3200*5 \end{array}$$

171 : 164

$$\text{So } (171-164)/(171+164) * x = 350$$

Solve,  $x = \text{Rs } 16750$

So (100-33)% of y (total profit) = 16750

Solve,  $y = \text{Rs } 25000$

4. Karuna and Varuna invested Rs 2400 and Rs  $x$  in a business. After 3 months, Karuna added Rs 600 while Varuna withdrew Rs 300. After a year out of a total profit of Rs 36,920, Varuna received Rs 17,160. Find the amount invested by Varuna at the starting of business.
- A) Rs 2700
  - B) Rs 1900
  - C) Rs 2100
  - D) Rs 2400
  - E) Rs 1600

**View Answer**

#### Option A

##### Solution:

Ratio of shares of Karuna and Varuna is

$$2400*3 + 3000*9 : x*3 + (x-300)*9$$

gives 11400 : (4x-900)

$$\text{So } (4x-900)/(11400+4x-900) * 36920 =$$

17160

Solve,  $x = \text{Rs } 2700$

5. Vijay and Ajay started a business by investing Rs 2000 and Rs 1500 respectively. 4 months after start, Vijay withdrew all his money and Amit joined Ajay by investing Rs 3000. After the end of year, the difference between the shares of Amit and Vijay together and Ajay is Rs 3423. What is the total profit after a year?
- A) Rs 12375
  - B) Rs 13455
  - C) Rs 14265
  - D) Rs 14350
  - E) Rs 12225

**View Answer**

#### Option E

##### Solution:

Ratio of shares of Vijay : Ajay : Amit is

$$2000*4 : 1500*12 : 3000*8$$

4 : 9 : 12

$$[(12+4)-9]/(4+9+12) * x = 3423$$

Solve,  $x = \text{Rs } 12225$

6. Tiya and Piya invested Rs 1350 and Rs 1800 respectively in a business. After 9 months Piya withdrew her entire money and Riya and Siya joined the business by investing Rs 3000 and Rs 2700 respectively. If after a year, a total of Rs 13,750 is obtained as profit, find the total share of Piya and Riya together out of total profit.
- A) Rs 6000
  - B) Rs 8000
  - C) Rs 7000
  - D) Rs 6500
  - E) Rs 7500

**View Answer**

#### Option C

##### Solution:

Ratio of shares of Tiya : Piya : Riya : Siya is

$$1350*12 : 1800*9 : 3000*3 : 2700*3$$

18 : 18 : 10 : 9

$$\text{So } (B+C) \text{ got} = (18+10)/(18+18+10+9) * 13750 = \text{Rs } 7000$$

7. Veena, Meena and Teena started a business by investing Rs 7000, Rs 7500 and Rs 6500 respectively for 4 months. After 4 months Veena and Teena added same amount as before while Teena invested Rs 7000 for 8 months. If after this the profit earned was Rs 44,800, find the share of Teena.
- A) Rs 15,380
  - B) Rs 14,440
  - C) Rs 13,520
  - D) Rs 14,350
  - E) Rs 13,380

**View Answer**

#### Option D

##### Solution:

Ratio of shares Veena : Meena : Teena is

$7000*12 : 7500*12 : 6500*4 + 7000*8$   
 $42 : 45 : 41$   
So share of Teena is  $41/(42+45+41) * 44800 = \text{Rs } 14,350$

8. Vanya and Tanya started a business by investing Rs 1750 and Rs 2100 respectively. 5 months later, Tanya withdrew her entire money and Sanya and Manya joined the business with investments of Rs 4000 and Rs 6500 respectively. If after a year difference in total shares of Sanya and Manya together and total shares of Vanya and Tanya together is Rs 6,720, find the total profit.
- A) Rs 16,900  
B) Rs 16,800  
C) Rs 15,100  
D) Rs 15,300  
E) Rs 16,300

**View Answer**

#### Option B

##### Solution:

Ratio of shares Vanya : Tanya : Sanya : Manya is  
 $1750*12 : 2100*5 : 4000*7 : 6500*7$   
 $25 * 12 : 30*5 : 400 : 650$   
 $12 : 6 : 16 : 26$   
 $6 : 3 : 8 : 13$   
 $[(8+13)-(6+3)]/(6+3+8+13) * x = 6720$   
Solve,  $x = \text{Rs } 16,800$

9. Sumit and Rumit started a business by investing Rs 7200 and Rs 6400 respectively. After 6 months, Sumit withdrew half and Rumit withdrew 1/4th of their respected money invested. If after a year, a total profit of Rs 19,800 is made, what is the share of Sumit?
- A) Rs 8480  
B) Rs 9490  
C) Rs 9720  
D) Rs 8150  
E) Rs 9220

**View Answer**

#### Option C

##### Solution:

Rumit withdrew 1/4th so remained money Is 3/4th of 6400

Ratio of shares of profit of Sumit : Rumit is  $7200*6 + 3600*6 : 6400*6 + 4800*6$

$27 : 28$

Share of Sumit =  $27/(27+28) * 19800 = \text{Rs } 9720$

10. Rohit, Lohit and Mohit started a business by investing in the ratio  $1/3 : 2/4 : 2/5$ . After 8 months Mohit withdrew 1/2 of his investment. If after 12 months from start of business Rohit and Lohit got a share of Rs 16,000 out of the total profit, then find the share of Mohit?
- A) Rs 7200  
B) Rs 5700  
C) Rs 6500  
D) Rs 6400  
E) Rs 4700

**View Answer**

#### Option D

##### Solution:

Investments of Rohit : Lohit : Mohit =  $1/3 : 1/2 : 2/5 = 10 : 15 : 12$

After 8 months Mohit withdrew 1/2, so  $1/2 * 12 = 6$ , so invested =  $12-6 = 6$  for another 4 months

So now ratio of shares of Rohit : Lohit : Mohit is

$10 * 12 : 15 * 12 : 12 * 8 + 6 * 4$   
 $2 : 3 : 2$

Let x is total profit. So  $(2+3)/(2+3+2) * x = 16000$

$x = 22400$

So share of Mohit =  $2/7 * 22400 = \text{Rs } 6400$



A and B invested in a business in ration 7 : 6. After 7 months, C joined them with double the investment made by B. If A and C together got Rs 2380 from the total profit after a year, what was the annual profit?

- A) Rs 3430  
B) Rs 2880  
C) Rs 2920  
D) Rs 3570

E) Rs 3850

**View Answer**

**Option D**

**Solution:**

Investment of A =  $7x$ , B =  $6x$ . So that of C =  $2 \cdot 6x = 12x$

So ratio of A : B : C is  
 $7x \cdot 12 : 6x \cdot 12 : 12x \cdot 5$   
 $7 : 6 : 5$

Let annual profit = Rs x. So  
 $(7+5)/(7+6+5) \cdot x = 2380$   
So x = Rs 3570

- A invested Rs 5000 in a business. After 4 months B joined him by investing Rs 4800. After a further of 2 months, C joined them with Rs 5200. If after the end of year, they earned a total profit if Rs 14,400, then what is the difference between the shares of A and B?
- A) Rs 2570  
B) Rs 2400  
C) Rs 2560  
D) Rs 2500  
E) Rs 2000

**View Answer**

**Option B**

**Solution:**

Ratio of shares of profit of A : B : C is  
 $5000 \cdot 12 : 4800 \cdot 8 : 5200 \cdot 6$

$50 \cdot 12$   
 $25 : 16$

So difference in shares of A and B =  $(25 - 16)/(25 + 16 + 13) \cdot 14400 = \text{Rs } 2400$

- A, B and C invested in ratio  $1/2 : 3/4 : 2/3$ . After 6 months C withdrew his  $1/4$ th investment. If after 8 months A and B got a share of Rs 16,000 out of the total profit, then find the share of C?
- A) Rs 7,000  
B) Rs 8,000  
C) Rs 8,400  
D) Rs 7,800  
E) Rs 7,300

**View Answer**

**Option B**

**Solution:**

Investments of A : B : C =  $1/2 : 3/4 : 2/3 = 6 : 9 : 8$

After 6 months C withdrew  $1/4$ th, so  $1/4 \cdot 8 = 2$ , so invested =  $8 - 2 = 6$  for another 6 months

So now ratio of shares of A : B : C is

$6x \cdot 8 : 9x \cdot 8 : 8x \cdot 6 + 6x \cdot 2$

$4 : 6 : 5$

Let x is total profit. So  $(4+6)/(4+6+5) \cdot x = 16000$

$x = 1600 \cdot 15$

So share of C =  $5/15 \cdot 1600 \cdot 15 = \text{Rs } 8000$

- A total of Rs 84,000 is invested in a business. Investment of A is Rs 4000 less than that of B and B's investment is Rs 4000 less than that of C. If A invested his amount for 5 months and B and C each for 4 months, then out of total profit if Rs 63,000 what is the share of A?

- A) Rs 21,000  
B) Rs 19,980  
C) Rs 21,320  
D) Rs 15,250  
E) Rs 22,250

**View Answer**

**Option A**

**Solution:**

Let C's investment is Rs x, then B's = Rs  $(x - 4000)$ , then A's = Rs  $(x - 4000 - 4000) = \text{Rs } (x - 8000)$

$(x-8000) + (x-4000) + (x) = 84000$   
Solve,  $x = 32,000$

So ratio of shares of A, B and C is

$24000 \cdot 5 : 28000 \cdot 4 : 32000 \cdot 4$

$15 : 14 : 16$

So A's share =  $15/(15+14+16) \cdot 63000 = \text{Rs } 21000$

- A invested Rs 5500 for 2 months more than B while B invested Rs 4000 for 1 month more than C who invested Rs 5600. If out of a total profit of Rs 6000, the difference in the shares of C and B is Rs 250 then find the time for which A invested the money.

- A) 5 months  
B) 7 months  
C) 9 months  
D) 8 months

E) 6 months

**View Answer**

**Option D**

**Solution:**

Let C invested money for  $x$  months, then B for  $(x+1)$  months and then A for  $(x+1+2) = (x+3)$  months

So ratio of shares of A : B : C is

$$5500*(x+3) : 4000*(x+1) : 5600*x$$

$$55(x+3) : 40(x+1) : 56x$$

Given

$$(56x - 40x - 40)/(55x + 165 + 40x + 40 + 56x) *$$

$$6000 = 250$$

Solve,  $x = 5$

So A invested for  $5+3 = 8$  months

A invested Rs 25,300 for 7 months, B invested Rs 25,200 for 11 months and C invested Rs 27,500 for 7 months. Find the share of A and C together out of a total profit of Rs 33,600.

A) Rs 18,600

B) Rs 17,500

C) Rs 19,500

D) Rs 21,500

E) Rs 19,200

**View Answer**

**Option E**

**Solution:**

Ratio of

$$25300*$$

$$23*7 : 252 : 25*7$$

$$23 : 36 : 25$$

Total of profit of A and C is

$$(23+25)/(23+36+25) * 33600 = \text{Rs } 19,200$$

In a business, A invested Rs 25,000 and B invested Rs 24,000. As his salary A got 1/50th of the total profit of Rs 60,000 after which the remaining amount was shared among A and B in the ratio of their shares in profit. Find the difference in the shares of both.

A) Rs 2,300

B) Rs 2,440

C) Rs 2,500

D) Rs 2,400

E) Rs 2,380

**View Answer**

**Option D**

**Solution:**

Ratio of shares A : B is

$$25000 : 24000$$

$$25 : 24$$

A got  $1/50 * 60000 = \text{Rs } 1200$  extra

So remaining profit to be shared between A and B is  $60,000 - 1200 = \text{Rs } 58,800$

So now B got  $= 24/(25+24) * 58,800 = \text{Rs } 28,800$

So A got  $= 1200 + (58800 - 28000) = \text{Rs } 31200$

So different in shares  $= 31200 - 28800 = \text{Rs } 2400$

In a business A and B invested Rs 5,000 and Rs 6,000 respectively. After 9 months from start of business, C invested Rs 12000 and A and B both withdrew Rs 1,000 each from their investments. If at the end of year B and C together got Rs 12,250 from the total profit, then what is the total profit?

A) Rs 18,900

B) Rs 13,600

C) Rs 15,100

D) Rs 15,300

E) Rs 16,300

**View Answer**

**Option A**

**Solution:**

Ratio of shares A : B : C is

$$5000*9 + 4000*3 : 6000*9 + 5000*3 : 12000*3$$

$$19 : 23 : 12$$

Let  $x$  is the total profit

$$\text{So } [(23+12)/54]*x = 12,250$$

Solve,  $x = \text{Rs } 18,900$

In a business, A and B invested Rs 10,000 and Rs 11,000 respectively. After 4 months they both withdrew Rs 1000 from their respective investments. After a further of 6 months, A invested Rs 1000 more and B invested Rs 2000 more. What is the difference in the shares of both if Rs 54,450 is received as total profit after a year?

A) Rs 2480

B) Rs 3490

C) Rs 2310

- D) Rs 3150  
E) Rs 3220

**View Answer**

**Option D**

**Solution:**

Ratio of shares of profit of A : B is

$$\begin{aligned} & 10000*4 + 9000*6 + 10000*2 : 11000*4 + \\ & 10000*6 + 12000*2 \\ & 10000*6 + 9000*6 : 11000*4 + 10000*6 + \\ & 12000*2 \\ & 10*6 + 9*6 : 11*4 + 10*6 + 12*2 \\ & 10*3 + 9*3 : 11*2 + 10*3 + 12 \\ & 57 : 64 \end{aligned}$$

$$\text{Difference} = (64-57)/(57+64) * 54450 = \text{Rs } 3150$$

- In a business, A and B invested Rs 2600 and Rs 3900 respectively. After half year, A withdrew half and B withdrew 1/3rd from their investments. What is the difference in the shares of both, if a total profit of Rs 16,800 is received after a year?

- A) Rs 4200  
B) Rs 5700  
C) Rs 4500  
D) Rs 5830  
E) Rs 4770

**View Answer**

**Option A**

**Solution:**

B withdrew after  months

Ratio of shares of profit of A : B is

$$\begin{aligned} & 2600*6 + 1300*6 : 3900*6 + 2600*6 \\ & 26 + 13 : 39 + 26 \\ & 2 + 1 : 3 + 2 = 3 : 5 \end{aligned}$$

$$\text{So difference} = (5-3)/(3+5) * 16800 = \text{Rs } 4200$$

- Arun and Vibha started a business by investing Rs 20,000 and Rs 16,000 respectively. After 4 months, Tisha joined them by investing Rs 24,000. Also Arun and Vibha both added Rs 3000. Find the difference in profits of Arun and Tisha if after a year they get Rs 26,880 as profit.

- A) Rs 2430  
B) Rs 2880  
C) Rs 2920  
D) Rs 2220

- E) Rs 1850

**View Answer**

**Option B**

**Solution:**

Ratio of shares of profit of

Arun : Vibha : Tisha

$$\begin{aligned} & 20000*4 + 23000*8 : 16000*4 + 19000*8 : \\ & 24000*8 \end{aligned}$$

$$\Rightarrow 20 + 23*2 : 16 + 19*2 : 24*2$$

$$\Rightarrow 11 : 9 : 8$$

So difference in profits of Arun and Tisha =  $[\frac{11-8}{11+9+8}] * 26,880 = \text{Rs } 1880$

- Priya started a business by investing Rs 2050. After 7 months she is joined by Varun and Rekha. If after 7 months Priya withdraws Rs 300, Varun invests Rs 2310 and Rekha invests Rs 2730, then find the share of profit of Varun and Rekha together out of total profit of Rs 11500 after a year.

- A) Rs 6500  
B) Rs 6320  
C) Rs 6560  
D) Rs 6500  
E) Rs 6000

**View Answer**

**Option E**

**Solution:**

Ratio of shares of profit of

Priya : Varun : Rekha

$$2050*7 + 1750*5 : 2310*5 : 2730*5$$

$$\Rightarrow 2050 + 250*5 : 330*5 : 390*5$$

$$\Rightarrow 41+25 : 33 : 39$$

$$\Rightarrow 22 : 11 : 13$$

So total profits of Varun and Rekha =  $[\frac{11+13}{22+11+13}] * 11,500 = \text{Rs } 6000$

- Kavita invested Rs 2400 for x months in a business and Vipin invested Rs 2800 for 3 months more than Kavita in the same business. If Kavita got Rs 18000 as her share out of a total profit of Rs 48,000, find for how many months Vipin invested?

- A) 6 months  
B) 15 months

- C) 10 months  
 D) 12 months  
 E) 9 months

**View Answer**

**Option C**

**Solution:**

Ratio of shares of profit of

Kavita : Vipin

$$2400 \cdot x : 2800 \cdot (x+3)$$

$$\Rightarrow 6x : 7x+21$$

Given:

$$[\text{latex s}=\text{"1"}] \frac{6x}{13x+21} \cdot 48,000 = 18,000 [\text{latex}]$$

Solve,  $x = 7$

So Vipin invested for  $7+3 = 10$  months

- Suman and Chavi started a business by investing Rs 1960 and Rs 2450 respectively. Chavi got Rs 200 per month for her work. After 5 months, Suman added Rs 340 more and Chavi left. If after a year they get a total profit of Rs 18,850, then what total amount did Chavi get?  
 A) Rs 7,150  
 B) Rs 6,980  
 C) Rs 6,320  
 D) Rs 4,250  
 E) Rs 6,250

**View Answer**

**Option E**

**Solution:**

Ratio of

Suman

$$1960 \cdot 5 + 2300 \cdot 7 : 2450 \cdot 5$$

$$\Rightarrow 280 \cdot 5 + 2300 : 350 \cdot 5$$

$$\Rightarrow 74 : 35$$

Chavi got  $200 \cdot 5 =$  Rs 1000 for her work, so now the profit which will be divided according to ratio will be  $18850 - 1000 =$  Rs 17,850

So Chavi's share =  $[\text{latex s}=\text{"1"}] \frac{35}{74+35} \cdot 17,850 = 5,250 [\text{latex}]$

So total amount of Chavi =  $1000 + 5250 =$  Rs 6,250

- Reema invested Rs 24000 for  $x$  months, Sheena invested Rs 20000 for 3 months more than Reema and Tina invested Rs 16000 for 3 months more than Sheena. If difference between the shares of Tina and Reema is Rs 4200 out of a

total profit of Rs 34,200, find  $x$ .

- A) 5  
 B) 2  
 C) 9  
 D) 7  
 E) 6

**View Answer**

**Option A**

**Solution:**

Ratio of shares of profit of

Reema : Sheena : Tina

$$24000 \cdot x : 20000 \cdot (x+3) : 16000 \cdot (x+6)$$

$$\Rightarrow 6x : 5x+15 : 4x+24$$

Given:

$$[\text{latex s}=\text{"1"}] \frac{4x+24 - 6x}{6x + 5x+15 + 4x+24} \cdot 34,200 = \text{Rs } 4200 [\text{latex}]$$

Solve,  $x = 5$

- Shreya started a business by investing Rs 2200. After 4 months she adds Rs 200 and Aditya joins her with Rs 3000. After further 6 months, both withdrew Rs 400. Find the difference in their shares of profit if total profit after a year is Rs 15,750.

- A) Rs 2000  
 B) Rs 1750  
 C) Rs 1250  
 D) Rs 2350  
 E) Rs 1320

**View Answer**

**Option C**

**Solution:**

Ratio of shares of profit of

Shreya : Aditya

$$2200 \cdot 4 + 2400 \cdot 6 + 2000 \cdot 2 : 3000 \cdot 6 + 2600 \cdot 2$$

$$\Rightarrow 22 + 6 \cdot 6 + 5 \cdot 2 : 15 \cdot 3 + 13$$

$$\Rightarrow 34 : 29$$

So difference in their profits =

$$[\text{latex s}=\text{"1"}] \frac{34 - 29}{34 + 29} \cdot 15,750 = \text{Rs } 1250 [\text{latex}]$$

- Three friends invested Rs 700, Rs 600 and Rs 630 respectively. The first one invested for  $x$  months, second for  $(x+3)$  months and third for  $(x+6)$  months. What is the longest duration of investment, if ratio of share of first to third is 4 : 9?

- A) 20 months  
 B) 10 months  
 C) 14 months  
 D) 4 months  
 E) None of these

**View Answer****Option B****Solution:**

Ratio of shares of profit of

First : Second : Third

$$700*x : 600*(x+3) : 630*(x+6)$$

Given:

$$\frac{70x}{63(x+6)} = \frac{4}{9}$$

Solve,  $x = 4$ So longest duration =  $4+6 = 10$  months

- Bhavna, Charu and Shikha invested Rs 3600 for 7 months, Rs 4300 for 9 months and Rs 4500 for 6 months respectively. What is the share of profit of Charu out of a total profit of Rs 12,120?  
 A) Rs 4260  
 B) Rs 3760  
 C) Rs 5160  
 D) Rs 5380  
 E) Rs 6320

**View Answer****Option C****Solution:**

Ratio of shares of profit of

Bhavna

$$3600*7$$

$$\Rightarrow 4*7 : 43 : 15*2$$

$$\Rightarrow 28 : 43 : 30$$

$$\text{So share of Charu} = \frac{43}{28+43+30} * 12,120 = \text{Rs } 5160$$

- Prerna invested Rs  $x$  for 6 months, Ankita Rs 2400 for 10 months and Pavneet Rs 3900 for 8 months. If Ankita got Rs 6000 out of a total profit of Rs 19,200, then what is the money

invested by Prerna?

- A) Rs 2400  
 B) Rs 4400  
 C) Rs 2300  
 D) Rs 3800  
 E) Rs 3600

**View Answer****Option E****Solution:**

Ratio of shares of profit of

Prena : Ankita : Pavneet

$$x*6 : 2400*10 : 3900*8$$

$$\Rightarrow 3x : 1200*10 : 3900*4$$

Given:

$$\frac{12000}{3(x+9200)} * 19200 = 6000$$

Solve,  $x = \text{Rs } 3600$ 

- Trisha and Misha invested Rs 3500 and Rs 3000 in a business. After 7 months both added Rs 500 to their investments. If after a year the difference in their shares of profit is Rs 1140, find the total profit at the end of year.

- A) Rs 16730  
 B) Rs 15770  
 C) Rs 12560  
 D) Rs 15830  
 E) Rs 14770

**View Answer****Option B****Solution:**

Ratio of shares of profit of

Trisha : Misha

$$3500*7 + 4000*5 : 3000*7 + 3500*5$$

$$\Rightarrow 7*7 + 40 : 6*7 + 35$$

$$\Rightarrow 89 : 77$$

Given:

$$\frac{89-77}{89+77} * x = 1140$$

Solve,  $x = \text{Rs } 15770$

# 120+ TIME & WORK QUESTIONS WITH SOLUTION

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A completes 40% of a task in 10 days and then takes the help of B and C. B is 50% as efficient as A is and C is 50% as efficient as B is. In how many more days will they complete the work?

- A)  $13 \frac{1}{3}$
- B)  $8 \frac{4}{7}$
- C)  $10 \frac{2}{3}$
- D) 9
- E) None

[View Answer](#)

### Option B

#### Solution:

A completes 40% of work in 10days.

Given, A:B is 2:1 and B:C is 2:1

Now A:B:C=4:2:1

A's work  $4*10(\text{days}) = 40\%$

Remaining  $60\% = 60/(4+2+1)7 = 8 \frac{4}{7} \text{ days.}$

• Jeni can do a job in 30 days, Nove in 45 days and Joel in 60 days. If Jeni is helped by Nove and Joel every 3rd day, how long will it take for them to complete the job?

- A)  $7 \frac{1}{5}$
- B) 8
- C)  $9 \frac{3}{4}$
- D) 10
- E) None

[View Answer](#)

### Option A

#### Solution:

Jeni 30 ..... 6

N 45 LCM180 ..... 4

Joel 60 ..... 3

1st two days =  $6*2=12$ unit work completed.

3rd day  $(6+4+3)= 13$ unit

For 3 days

$12+13=25$ unit completed

$3*7=21*7$

$21=175$

Remaining 5 unit done by Jeni

Then  $5/6$ work

Then total  $21 \frac{5}{6}$ days.

- Ram and Ravi can do a job together in 8 days. Ram is  $11/8$  times as efficient as Ravi. The same job can be done by Ravi alone in
  - A) 21
  - B) 25
  - C) 19
  - D) 16
  - E) None

[View Answer](#)

### Option C

#### Solution:

Ram :Ravi 11: 8(Efficiency)

$(11+8) = 19$       8(both completed in 8days)

Then Ravi 8 ?= (Efficiency and days are reciprocal) $19*8/8=19$ days.

• The work done by a woman in 8 hours is equal to the work done by a man in 6 hours and by a boy in 12 hours. If working 6 hours per day 9 men can complete a work in 6 days then in how many days can 12 men, 12 women and 12 boys together finish the same work working 8 hours per day?

- A)  $3 \frac{2}{3}$
- B)  $5 \frac{1}{3}$
- C) 3
- D) 6
- E) None

[View Answer](#)

### Option A

#### Solution:

$$8W=6M=12B$$

Then  $1M=2B$ ,  $1W=3/2B$ ,  $1W=3/4M$

Then  $12 M+12W+12B=12M+9M+6M=27M$

Given 9men work 6hrs /day and complete in 6days

$$9*6*6/1=27*8*x/1$$

$$\Rightarrow x=3/2.$$

- M and N can do a piece of work in 30 days, while N and O can do the same work in 24 days and O and M in 20 days. They all work together for 10 days when N and O leave. How many days more will M take to finish the work?
- A) 35  
B) 15  
C) 22  
D) 18  
E) None

**View Answer****Option D****Solution:**

$$\begin{aligned}2(M+N+O)'s \text{ 1 day work} &= \\(1/30+1/24+1/20) &= 1/8 \\&\Rightarrow (M+N+O)'s \text{ 1 day's work} = 1/16 \\&\text{work done by M, N and O in 10 days} = \\10/16 &= 5/8 \\&\text{Remaining work} = (1 - 5/8) \\M's \text{ 1 day's work} &= (1/16 - 1/24) = 1/48 \\&\text{Now, } 1/48 \text{ work is done by M in 1 day.} \\&\text{So, } 3/8 \text{ work will be done by M in } 48 * 3/8 = \\18 \text{ days}\end{aligned}$$

- 6 men can do a piece of work in 2 hours, which 3 women could do in 3 hours, or 5 children in 4 hours. How long would 1 man, 1 woman and 1 child take to complete the work?
- A) 180 hrs  
B) 135/33  
C) 140/13  
D) 195/14  
E) None

**View Answer****Option B****Solution:**

$$\begin{aligned}1 \text{ men work} &= 6 * 2 = 12 \text{ hrs} \\1 \text{ women work} &= 3 * 3 = 9 \text{ hrs} \\1 \text{ children work} &= 5 * 4 = 20 \text{ hrs} \\&\text{Required work} = 12 * 9 * 20 / (12 * 9) + (9 * 20) + (20 * 12) \\&= 2160 / 528 = 135/33 \text{ hrs.}\end{aligned}$$

- A, B and C can all together do piece of work in 20 days, in which B takes twice as long as A and C together do the work and C takes twice as long as A and B together take to do the work. In how many days B can alone do the work?
- A) 40  
B) 35  
C) 60  
D) 45  
E) None

**View Answer****Option C****Solution:**

$$\begin{aligned}(A+C) \text{ in } x \text{ days so B completes in } 2x \text{ days} \\&\text{then } (1/x) + (1/2x) = 1/20 \\&\text{solve, } x = 30 \\&\text{so B } 2x = 60 \text{ days}\end{aligned}$$

- A typing work is done by three person P, Q and R. P alone takes 20 hours to type a single booklet but Q and R working together takes 5 hours, for the completion of the same booklet. If all of them worked together and completed 15 booklets, then how many hours have they worked?
- A) 45 hrs  
B) 60 hrs  
C) 38 hrs  
D) 55 hrs  
E) None

**View Answer****Option B****Solution:**

$$\begin{aligned}1/P &= 1/20 \\1/P + 1/Q + 1/R &= 1/20 + 1/5 = 1/4 \\&\text{In 4 hours, working together, they will} \\&\text{complete 1 booklet.} \\&\text{Thus, 15 booklets completed in 60 hrs.}\end{aligned}$$

- Efficiency of A is 25% more than B and B takes 25 days to complete a piece of work. A started a work alone and then B joined her 5

days before actual completion of the work.  
For how many days A worked alone?

- A) 11
- B) 9
- C) 15
- D) 12
- E) None

[View Answer](#)

**Option A**

**Solution:**

$$\text{Efficiency (A : B)} = 5 : 4$$

$$\text{Number of days(A : B)} = 4x : 5x = 4x : 25$$

∴ Number of days required by A to finish the work alone =  $4x$

$$= 4 \times 5 = 20.$$

A and B work together for last 5 days =  $5 \times 9 = 45\%$

Efficiency of A = 5% and B's efficiency = 4%

∴ No. of days taken by A to complete 55% work =  $55/5 = 11$  days

- A project manager hired 15 men to complete a project in 40 days. However, after 30 days, he realized that only  $1/2$  of the work is completed. How many more men does he need to hire to complete the project on time?

- A) 15
- B) 30
- C) 20
- D) 25
- E) None

[View Answer](#)

**Option A**

**Solution:**

15Men complete a work in 40days.

$$15 \times 40/1=(40-30)10*x/(1/2)=x=30\text{Men}$$

$$\text{Men required}=30-15=15\text{Men.}$$

1. 20 Men can complete a work in 12 days and 24 Boys can complete same work in 20 days. 16 men and 8 boys started

working and worked for 12 days. How many more days are needed to complete the work?

- A) 4 days
- B) 7 days
- C) 9 days
- D) 2 days
- E) No more days needed.

[View Answer](#)

**Option E**

**Solution:**

$$20M * 12 \text{ days} = 24B * 20 \text{ days}$$

$$\text{then } 1M=2B$$

$$\text{Now } 16M + 8B \Rightarrow 16M+4M=12 \text{ days ie } 20M=12 \text{ days.}$$

So no more days needed to complete the work.

2. A and B each working alone can do a work in 12 and 36 days respectively. They started the work together but A left after sometime and B finished the remaining work in 4 days. After how many days from the start did A leave?
  - A) 10 days
  - B) 8 days
  - C) 12 days
  - D) 3 days
  - E) None

[View Answer](#)

**Option B**

**Solution:**

$$A \ 12 \text{ unit}(A's \text{ work})$$

$$B \ 36 \text{ unit}(B's \text{ work}) \text{ Both Lcm } 36 \text{ (whole work)}$$

B work 1 unit per day then for 4 days 4unit.

remaining  $36-4=32$  unit left that done by both A and B

Both work unit  $(3+1) 4$   
 $\Rightarrow 32/4 \Rightarrow 8$  days.

3. A man 'A' can do a piece of work in 10 days, man 'B' can do the same piece of

work in 12 days while man 'C' can do it in 15 days. They started work together but after 2 days 'A' left the work and the remaining work was completed by 'B' and 'C' together. Find in how many days will the work be completed.

- A) 5 days
- B) 7 days
- C)  $2\frac{1}{6}$  days
- D)  $3\frac{1}{3}$  days
- E) None of these

**View Answer**

**Option D**

**Solution:**

A.....10	6unit	
B.....12	Lcm=60	5unit
C.....15	4unit	

Work of all 3 per day is 15 units ( $6+5+4$ )

All 3 worked for 2 days. So 2 days work is  $2 \times 15 = 30$  units.

Remaining  $(60-30) = 30$  unit

That work done by B and C their per day work unit  $(5+4) = 9$  unit

Remaining work done by B and C is  $30/9 = 3\frac{1}{3}$  days.

4. An empty tank whose capacity is 50 litres. There is an inlet pipe which fills at 7 L/min and there is an outlet pipe which empties at 6L/min. Both the pipes function alternately for 1 minute. The inlet pipe is the first one to function, how much time will it take for the tank to be filled up to its capacity?
- A) 95
  - B) 100
  - C) 87
  - D) 110
  - E) none

**View Answer**

**Option C**

**Solution:**

Capacity 50 litres

1st Minute 7l filled (through inlet pipe)

2nd minute 6l emptied (through outlet pipe)

In 2 minutes  $(7\text{litres} - 6\text{ litres}) = 1$  l is filled

It takes 2 minutes to fill 1 l then 84 minutes to fill 42 litres.

in 85th min  $- 42+7 = 49$

in 86th  $- 49-6 = 43$

in 87th  $- 43+7 = 50$

5. There are three pipes, A, B and C, attached to container. A and B can fill the container alone in 20 and 30 mins, respectively whereas C can empty the container alone in 45 mins. The three pipes are kept opened alone for one minute each in the order A, B and C. The same order is followed subsequently. In how many minutes will the reservoir be full?
- A) 25 min
  - B) 35 min
  - C) 20 min
  - D) 47 min
  - E) None of these

**View Answer**

**Option D**

**Solution:**

A.....20	9unit
----------	-------

(180/20)
----------

B.....30	180 (LCM)	6unit
----------	-----------	-------

C.....45	4unit
----------	-------

1st Minute => A is opened => fills 9 L

2nd Minute => B is opened => fills another 6 L

3rd Minute => C is opened => empties 4 L

Hence every 3 minutes =>  $(9 + 6 - 4 = )$  11 litres are filled into the container.

So in 45 minutes  $(11 \times 15 = )$  165 litres are filled.

In the 46th minute A is opened and it fills 9 litres. In the 47th minute B is opened and it fills 6 litres.

Hence the container will be full in 47 minutes.

6. Efficiency of A is 50% more than B and B takes 21 days to complete a piece of work. A started the work alone and then B joined her 5 days before actual completion of the work. For how many days A worked alone?
- A) 6 days  
B) 4 1/2 days  
C) 5 2/3 days  
D) 7 days  
E) None

**View Answer****Option C****Solution:**

Efficiency (A : B) = 150:100 = 3 : 2 then days 2:3

B takes 21 days to do the work. Then A takes 14 days to do the work.

(3 === 21

2 ? === 14 days.)

Now A.....14                            3unit

.     B.....21   Lcm 42                2unit

then B joined with A and worked for 5days ==> 5\*5(3+2) = 25 unit

remaining (42-25)=17unit

then A did that 17 unit alone is 17/3==5 2/3 days.

7. M can do a piece of work in 10 days working 10 hours a day. The work is started by M and on the second day one man whose capacity to do the work is twice that of M, joined. On the third day another man whose capacity is thrice that of M, joined and the process continues till the work is completed. In how many days will the work be completed, if everyone works for five hours a day?
- A) 4  
B) 6  
C) 7  
D) 3  
E) None

**View Answer****Option A****Solution:**

M total work  $10 \times 10 = 100$

1st day = 5hrs

2nd day =  $10 + 5 = 15$

3rd day =  $15 + 10 + 5 = 30$

4th day =  $20 + 15 + 10 + 5 = 50$

Total  $(5 + 15 + 30 + 50) = 100$

So 4th day they completed the work.

8. A tent can be built by a certain number of workers in 20 days. But it requires less than 20 workers to build it in 30 days. How many workers will build it in 50 days?
- A) 30  
B) 24  
C) 50  
D) 18  
E) None

**View Answer****Option B****Solution:**

Let, x workers can do the work in 20 days.

then no of workers require to finish it in 30 days is  $20x / 30$

$20x/30 = (x - 20)$

$10x = 600$

$x = 60$

So, No of workers require to finished it in 50 days =  $(60 * 20) / 50 = 24$  workers.

9. A can do a particular work in 6 days . B can do the same work in 8 days. A and B signed to do it for Rs. 4000. They completed the work in 3 days with the help of C. How much is to be paid to C?
- A) 380  
B) 600  
C) 500  
D) 450  
E) None

**View Answer**

**Option C****Solution:**

A = 6

B = 8

	A	B	C
Days	6	8	24
	3		
(6*4)	(8*3)	(24*1)	
(8*3)		LCM 24	
Units	4	3	[8-(4+3)]
1	8(total unit)		

So C work 24 days to complete a work.  
 Then the ratio  $1/6 : 1/8 : 1/24 = 4 : 3 : 1$   
 Now total amount Rs 4000 ie (ratio  
 $4+3+1) 8 = 4000$

$$1(C's \text{ ratio}) = ? \quad 4000/8*1 = 500 \text{ Rs}$$

Amount paid to C is Rs 500.

10. Ram and Ravi can separately do a piece of work in 20 and 15 days respectively. They worked together for 6 days, after which Ravi was replaced by Rohit. If the work was finished in next 4 days, then the number of days in which Rohit alone could do the work will be :

- A) 40
- B) 42
- C) 45
- D) 50
- E) None

**View Answer****Option A****Solution:**

Ram and Ravi worked together  
 $1/20 + 1/15 = (3+4)/60 = 7/60$   
 they work for 6 days so  $7/60 * 6 = 7/10$   
 Remaining work  $3/10$  done by Ram and Rohit.  
 Ram and Rohit finished in 4 days so  $3/40$ .  
 now  $3/40 - 1/20 = 1/40$

1. A can do a work in 25 days which B alone can do in 20 days. A started the

work and was joined by B after 10 days . Find the number of days taken in completing the work ?

- A)  $7(1/3)$  days
- B)  $16(2/3)$  days
- C)  $12(1/3)$  days
- D)  $5(1/7)$  days
- E)  $11(1/10)$  days

**View Answer****Option B****Solution:**

Total work = 100 units  
 A = 4 units/ work  
 A do for 10 days of work = 40  
 remaining = 60  
 $A + B = 9$   
 remaining work completed in =  $60/9 = 6(2/3)$   
 $B = 5$  units/work  
 Total days in completing the work =  $10 + 6(2/3) = 16(2/3)$  days

2. 6 men of the first group do  $(2/3)$  of the work in  $(1/3)$  times compared to 4 men of the second group, find the respective ratio for one day of 2 men of the first group and 4 men of the second group?

- A) 3 : 4
- B) 3 : 7
- C) 2 : 3
- D) 1 : 3
- E) 2 : 5

**View Answer****Option C****Solution:**

$$6 M * (3/2)W * (T/3) = 4 m * W * T$$

$$\Rightarrow 2M/4m = 2/3$$

3. Aman is thrice as efficient as Bikash. Aman started the work and worked for 6 days then he is replaced by Bikash , he worked for 9 more days and they together finish 50% of the work. Find in how many days Bikash completed the work?  
 A) 35 days

- B) 40 days  
C) 57 days  
D) 54 days  
E) 48 days

[View Answer](#)**Option D****Solution:**

Aman : Bikash = 3 : 1  
 Total work = 27 work  
 Aman complete = 16 work/day  
 Bikash complete = 9 work /day  
 $50\% = 27$   
 $100\% = 54$   
 B alone take =  $54/1 = 54$  days

4. A, B and C can complete a piece of work in 10, 12 and 15 days resp. A left the work 5 days before the completion of the work B left two days after A had left the work. Find the number of days required to complete the work?  
 A) 7 days  
 B) 5 days  
 C) 10 days  
 D) 12 days  
 E) 8 days

[View Answer](#)**Option A****Solution:**

Total work = 60 units  
 A takes = 6 units/day  
 B takes = 5 units/day  
 C takes = 4 units/day  
 Now,  
 $(x-5)/10 + (x-3)/12 + x/15 = 1$   
 $\Rightarrow x = 7$  days

5. A can do a work in 12 days when he had worked for 3 days B joined him if they complete the work in 3 more days. In how many days can B alone finish the work.  
 A) 2 days  
 B) 5 days  
 C) 4 days

- D) 6 days  
E) 3 days

[View Answer](#)**Option D****Solution:**

A's 1 day's of work =  $3/12 = \frac{1}{4}$   
 Remaining work =  $1 - (1/4) = \frac{3}{4}$  days  
 $(A+B) = \frac{3}{4} = 3$  days  
 $(A+B) = 1 = 4$  days  
 (A+B) takes = 4 days to complete the work  
 A takes = 12 days to complete the work  
 total work = 12 units  
 B can complete the work in =  $12/2 = 6$  days

6. 6 women can complete a piece of work in 15 days. After 3 days from the start of the work, some of them left the work. If the remaining work was completed by the rest of the women in 20 days. How many women left after 3 days from the start of the work?  
 A)  $14/3$  days  
 B)  $15/4$  days  
 C)  $15/2$  days  
 D)  $16/3$  days  
 E)  $11/2$  days

[View Answer](#)**Option B****Solution:**

Let the number of women left the work be x  
 6 women done the work in 3 days =  $3/6 = \frac{1}{2}$   
 remaining work =  $1 - \frac{1}{2} = \frac{1}{2}$   
 Now,  
 $M1 D1/W1 = M2 D2/W2$   
 $\Rightarrow (6 * 15)/1 = ((6-x)*20)/(1/2)$   
 $\Rightarrow x = 15/4$  days

7. A is thrice as good as B and it takes 30 days less than B for doing a job. How much time required to finish the work together.  
 A)  $21(1/3)$  days

- B)  $23\frac{1}{2}$  days  
 C)  $22\frac{1}{2}$  days  
 D)  $20\frac{1}{4}$  days  
 E)  $22\frac{1}{3}$  days

[View Answer](#)

**Option C**

**Solution:**

$$A : B = 3 : 1 \text{ (efficiency)}$$

$$(A + B)'s \text{ day's work} = \left(\frac{1}{15}\right) + \left(\frac{1}{45}\right) = \frac{4}{45}$$

$$\text{Total time taken by both of them} = \frac{45}{4} = 11\frac{1}{4} \text{ days}$$

8. 10 men , 6 women and 9 boys were given a project of doing 2000 designs of a building in 5 days. All of them designed on the first day. On the second day 2 women and 3 boys are absent. On the third day , 3 men and 5 boys are absent. If the ratio of the number of designs done by them is in the ratio 3 : 2 : 1 respectively. Then find the number of designs designed by them on the second day (approx.)?
- A) 620  
 B) 600  
 C) 667  
 D) 650  
 E) 682

[View Answer](#)

**Option C**

**Solution:**

Let the ratio be  $3x : 2x : 1x$

Designs of building on the first day = 10

$$* 3x + 6 * 2x + 9 * x = 51x$$

On the second day =  $10 * 3x + 4 * 2x + 6 * x = 44x$

On the third day =  $7 * 3x + 6 * 2x + 4 * x = 37x$

Now,  $51x + 44x + 37x = 2000$

$$=> 132x = 2000$$

Therefore,  $2000/132*44 = 666.66 = 667$  (approx.)

9. 9 children can complete a piece of work in 200 days. 18 men can complete the

same work in 150 days and 12 women can complete the work in 180 days . In how many days can 10 children , 3 men and 12 women together complete the work?

- A)  $85\frac{1}{2}$  days  
 B)  $80\frac{1}{2}$  days  
 C)  $81\frac{1}{3}$  days  
 D)  $81\frac{9}{11}$  days  
 E)  $88\frac{1}{2}$  days

[View Answer](#)

**Option D**

**Solution:**

$$9 * 200 \text{ children} = 18 * 150 \text{ men} = 12 * 180 \text{ women}$$

$$=> 1800 \text{ children} = 2700 \text{ men} = 2160 \text{ women}$$

$$=> 10 \text{ children} = 15 \text{ men} = 12 \text{ women}$$

Now, 10 children + 3 men + 12 women = 10 children + 2 children + 10 children = 22 children

$$=> 22 \text{ children can complete the work in } = (200*9)/22 = 81(9/11) \text{ days}$$

10. A man gets Rs.620 for every day for his work . If he earns Rs.12400 in a month of 31 days . Find how many days did he work?

- A) 10 days  
 B) 21 days  
 C) 20 days  
 D) 18 days  
 E) 15 days

[View Answer](#)

**Option C**

**Solution:**

$$\text{Number of days} = 12400/620 = 20 \text{ days}$$

1. A is thrice as good a workman as B and therefore able to finish a job in 48 days less than B working together ,they can do it in how many days together ?

- A) 13 days  
 B) 15 days

- C) 18 days  
D) 12 days  
E) 116 days

**View Answer**

**Option C**  
**Solution:**

$$\text{A:B} \\ \text{Efficiency}=3:1$$

$$\text{Time}=1:3$$

Multiplying by 24 on both the sides ,

$$\text{A's}=24 \text{ days}$$

$$\text{B's}=72 \text{ days}$$

$$\text{Therefore, 2 units } = 48 \text{ days}$$

$$1 \text{ units } = 24 \text{ days}$$

$$\text{Total work}=\text{No. of days *Efficiency}$$

$$\begin{aligned} & 72*1 \\ & =72 \end{aligned}$$

One day work of A and B is  $3+1=4$  units

A and B will complete the work in

$$=72/4=18 \text{ days.}$$

2. Three men –A ,B and C working together can do a job 6 hours less time than A did alone ,1 hour less time than B alone and half the time needed by C .In how many days will A finish the work alone ?  
 A) 20/3 days  
 B) 23/4 days  
 C) 22/5 days  
 D) 33/6 days  
 E) 27/8 days

**View Answer**

**Option A**  
**Solution:**

$$\begin{array}{ccccccccc} \text{A+B+C} & & \text{A} & & \text{B} & & \text{C} & & \text{x} \\ \text{hr.} & & \text{x+6} & & \text{x+1} & & 2\text{x} & & \text{Taking} \end{array}$$

$$\text{LCM} = 2x(x+1)(x+6)$$

Taking efficiency of A and B ;

$$2x(x+1)(x+6)/(2x^2+2x+2x^2+12x) =$$

$$2x/1$$

$$3x^2+7x-6=0$$

$$X=-3(\text{ignore})$$

$$X=2/3$$

A will finish its work in  $(x+6)=20/3$  days

3. A work is started by a man on the first day. Each subsequent day a new person joined the work and it is known that the total work will completed on the 11th day. If from the starting day 6 men working on that work and no new men added later, in how many days the work got completed?  
 A) 15 days  
 B) 12 days  
 C) 14 days  
 D) 11 days  
 E) None of these.

**View Answer**

**Option D**  
**Solution:**

1day work of a man is 1 unit. If a new person joined the work on second day, 2 units of work get completed. Similarly 3 units on 3rd day, 4 units on 4th day so on...

Then for all the eleven days the total work =  $1 + 2 + 3 + \dots + 11 = 66$  units (Use formula

$$N(N+1)/2$$

Now 6 men /day work = 6 units/day.

They can complete 66 units of work in =  
 $66/6$   
 $=11$  days

4. Two men can complete a piece of work in 3 days while 3 women can complete the same work in 4 days and 4 children can complete the same work in 6 days. Then find in how many days 1 men ,1 women and 2 children can complete the same work ?  
 A) 4 days  
 B) 3 days  
 C) 5 days  
 D) 2 days

E) None of these.

**View Answer**

**Option B**

**Solution:**

$$2M * 3 = 3W * 4 = 4C * 6$$

$$\therefore 1M = 2W = 4C$$

$$LCM=4$$

1 Man's efficiency = 4 units/day

2 Women's efficiency = 2 units/day

4 Children's efficiency = 1 units/day

Total work =  $(2*4)*3=24$  days

(1 man + 1 woman + 2 children) = 4 + 2 + 2 = 8

(1 man + 1 woman + 2 children) complete the work =  $24/8=3$  days

5. 30 men are supposed to do a work in 38 days. After 25 days, 5 more men were employed on work for which the work is completed in 1 day before. If 5 more men were not worked then how many days took in delay?
- A) 1 day  
 B) 2 days  
 C) 3 days  
 D) 4 days  
 E) None of these.

**View Answer**

**Option A**

**Solution:**

$$30 \text{ Men} * 25 \text{ days} = 750$$

$$35 \text{ Men} * 12 \text{ Days} = 420$$

$$\text{Total} = 750 + 420 = 1170$$

$$\text{Now}, 1170/30 = 39 \text{ days}$$

1 day delay

6. A group of men decided to do a job in 4 days but 20 men dropped out everyday, the job was completed at the end of the 7th day. Find the men who are in the work initially?
- A) 155  
 B) 135

C) 120

D) 140

E) 160

**View Answer**

**Option D**

**Solution:**

$$\text{Total work} = M * 4 = 4M$$

$$M + (M+20) + \dots$$

$$7/2 [2M + 6(-20)] = 4M$$

$$M = 140$$

7. A printer A can print one thousand books in 15 hours, printer B can print the same number of books in 10 hours and printer C can print the same number of books in 12 hours. If all the printers are started to print the books at 8 A.M, After sometime printer A is closed at 9 A.M and printer B and printer C remains working. Find at what time the printing will be completed?
- A)  $4(3/11)$  hours  
 B)  $3(1/11)$  hours  
 C)  $5(1/11)$  hours  
 D)  $3(5/11)$  hours  
 E) None of these.

**View Answer**

**Option C**

**Solution:**

Let printing completed in be T hours

Then A's 1 hour work, B's T hours work

and C's T hours work = Total work

$$1/15 + T/10 + T/12 = 1$$

$$T = 5(1/11)$$

Hence, the printing of books will be completed at  $5(1/11)$  hours

8. Ramesh and Ram can do a piece of work in 24 and 30 days respectively. They both started and worked for 6 days. Ram then leaves the work and another their friend Rohit joins the work and completed the

remaining work with Ramesh in 11 days . Find how many days are taken by Rohit alone to finish the work?

- A) 110 days
- B) 132 days
- C) 150 days
- D) 120 days
- E) None of these.

[View Answer](#)

**Option D**

**Solution:**

$$(1/24 + 1/30) * 6 + (1/24 + 1/\text{Rohit}) * 11 = 1$$

Therefore ,Rohit takes 120 days to finish the work.

9. A woman has her three daughters. First and second can take 24 and 30 days resp. to complete a work .In how many days third one takes to complete the work. If woman can complete the whole work alone in  $3(3/11)$  days .The efficiency of woman is double than her three daughters.
- A) 22 days
  - B) 12 days
  - C) 13 days
  - D) 21 days
  - E) 19 days

[View Answer](#)

**Option B**

**Solution:**

$\text{LCM} = 72$  (if we are taking woman and her two daughters )

Here it is given

Woman Three daughters

Time taken = 1 : 2

Efficiency= 2 : 1Three daughters, let P

$$+Q+R=11$$

$$3+2+R=11$$

$$R=6 \text{ days}$$

Her third daughter complete the work in

$$=72/6= 12 \text{ Days}$$

10. A contractor takes a road construction project to finish it in 40 days and for that he engaged 200 men. After 30 days he employed 100 more men in this project, then the work finished on time. Find if the 100 more men would not worked then how many more days required to finish the work ?

- A) 8 days
- B) 10 days
- C) 12 days
- D) 7 days
- E) None of these.

[View Answer](#)

**Option E**

**Solution:**

$$100 * 10 \text{ days} = 1000$$

Now  $1000/200 = 5$  days (Initial total no. of men engaged in the project)

Hence ,5 more days required to finish the work if 100 more men would not joined .

1. A cistern can be filled by two pipes separately in 6 and 9 mins respectively. Both pipes are opened together for a certain time but being clogged, only  $5/6$  of full quantity water flows through the first and only  $3/4$  through the second pipe. The obstructions, however, being suddenly removed, the cistern is filled in 2 mins from that moment. How long was it before the full flow began?
- A) 3 min
  - B) 2 min
  - C) 1 min
  - D) 2.5 min
  - E) 1.5 min

[View Answer](#)

**Option B****Solution:**

total units .....36

first pipe ..... $36/6 = 6$  units

second..... $36/9 = 4$  units

now,  $( 5/6 * 6 + 3/4 * 4 ) T + 2 ( 6+4 ) =$

$36 >> T = 2$

2. Ram and mohan together can complete typing a book of 1575 pages in 25 days working 15 hrs per day. Ram is 20% more efficient than Mohan. A page contains an average of 275 words, then how many words can ram type in an hour?
- A) 525  
B) 600  
C) 625  
D) 630  
E) 645

[View Answer](#)

**Option D****Solution:**

Ram : mohan = 6:5

$R+M = 11$

$R+M = 1575 * 275 / 15 * 25 = 1155$

words in 1 hour

ram will type =  $1155 * 6/11 = 630$  words in 1 hour

3. Subhash can copy 70 pages in 16 hours ; Subhash and Prakash together can copy 275 pages in 40 hours. In how much time can Prakash copy 30 pages ?
- A) 15 hr.  
B) 12 hr.  
C) 14 hr.  
D) 18 hr.  
E) None of these.

[View Answer](#)

**Option B****Solution:**

Subhash can copy 70 pages in 16 hours so In 40 hours he can copy  $70 * 2.5 = 175$  pages. Hence prakash can copy 100 pages in 40 hours . Thus , he can copy 30 pages in 30% of the time i.e 12 hours.

4. A and B together can do a piece of work in 12 days which B and C together can do in 16 days. After A has been working at it for 5 days and B for 7 days, C finishes it in 13 days. In how many days could each do the work by himself ?
- A) 24, 12, 36  
B) 24, 16, 12  
C) 16, 48, 24  
D) 24, 36, 12  
E) None of these.

[View Answer](#)

**Option C****Solution:**

Total work = 48 ,...  $A+B = 4$  .... $B+C = 3$

now,  $5A + 7B + 13C = 48$

split it

$5A + 5B + 2B + 2C + 11C = 48$

so  $5*4 + 2*3 + 11c = 48$

so  $11c = 22$  .....  $c = 2$

so c alone =  $48/2 = 24$

$A = 48/3 = 16$

$B = 48/1 = 48$

5. 24 men take 12 days to complete a piece of work . They worked for a period of 4 days . After that , they were joined by 8 more men . How many more days will be taken by them to complete the remaining work?
- A) 8 days  
B) 9 days  
C) 7 days  
D) 6 days  
E) None of these.

[View Answer](#)

**Option D****Solution:**

$$24*12 - 24*4 = (24+8)x$$

By solving we get  $x = 6$  days

6. In two days A, B and C together can finish  $\frac{1}{4}$  of a work and in another 2 days B and C together can finish  $\frac{1}{5}$  part of the work. Then A alone can complete the whole work in?
- A) 10 days
  - B) 20 days
  - C) 40 days
  - D) 35 days
  - E) None of these.

[View Answer](#)

**Option C****Solution:**

work ..... 20

$$a+b+c = 5 \text{ in 2 days}$$

$$b+c = 4 \text{ in 2 days}$$

$$a = 1 \text{ in 2 days} \gg 40 \text{ days total}$$

or

$$2(a+b+c) = 1/4 \Rightarrow a+b+c = 1/8$$

$$2(b+c) = 1/5 \Rightarrow b+c = 1/10 > a = 1/8 - 1/10 \\ = 1/40 = 40 \text{ days}$$

7. A team of 100 men is supposed to do a work in 60 days. After 35 days, only  $\frac{5}{12}$  of the work was completed, so to complete the work before 40 more men were employed. If 40 men were not employed, how many extra days were required to complete the work by earlier number of men?
- A) 11 days
  - B) 15 days
  - C) 12 days
  - D) 14 days
  - E) None of these.

[View Answer](#)

**Option D****Solution:**

100 men completed  $\frac{5}{12}$  work in 35 days

So 100 men can complete the remaining  $\frac{7}{12}$  work in 49 days:

$$\text{Use } M_1*D_1*W_2 = M_2*D_2*W_1$$

$$100*35*(7/12) = 100*D_2*(5/12)$$

$$D_2 = 49 \text{ days}$$

But after 35 days, 40 more men were employed, so 140 men now and they completed  $\frac{7}{12}$  work in

$$\text{By } M_1*D_1*W_2 = M_2*D_2*W_1$$

$$100*35*(7/12) = 140*D_2*(5/12)$$

$$D_2 = 35 \text{ days}$$

$$\text{So extra days} = 49-35 = 14 \text{ days}$$

8. Two typist of varying skills can do a job in 6 minutes if they work together. If the first typist typed alone for 4 minutes and then second typed for 6 minutes , they would be left with  $\frac{1}{5}$  of the whole work. How many minutes would it take the slower typist to complete the work alone ?
- A) 10 min
  - B) 12 min
  - C) 15 min
  - D) 20 min
  - E) None of these.

[View Answer](#)

**Option C****Solution:**

The first typist types for 4 minutes and second one for 6 minutes , the work left would be the work the first typist can do in 2 minutes. Thus the time taken by the first typist to do the work would be 10 minutes and his rate of work would be 10% per minute . Since both can do whole work in 6 minutes their combined efficiency =  $100/6 = 16.66\% >$  second typist = 6.66%

so he would take =  $100/6.66 = 15$  minutes.

9. Tap A can fill a tank with water in 10 hrs. Tap B fills the same tank with milk in 12.5 hrs. A man who wanted to fill the tank with the mixture opens tap A first, which already contains 8% milk of its own capacity. After two hours he opened tap B till the tank gets filled completely. In what proportion should he mix this solution with the other one containing water and milk in the ratio 2 : 3, so that the new solution will contain half milk and half water?
- A) 2:3  
B) 1:1  
C) 1:2  
D) 2:1  
E) 1:3

**View Answer****Option B****Solution:**

Total work = 50

a = 5

b = 4

it already contain 8% milk = 4 lit

a — in 2 hrs =  $5 \times 2 = 10$  lit water

so, total fill = 14 lit. remain. = 36 lit

done by a+b in  $36/9 = 4$  hrsso, water added by a —  $4 \times 5 = 20$  litremilk added by b —  $4 \times 4 = 16$  litreso. Total water =  $10 + 20 = 30$  litreTotal milk =  $4 + 16 = 20$  litre

W:M = 3:2

now  $3/5$  \_\_\_\_\_  $2/5$ \_\_\_\_\_  $1/2$  \_\_\_\_\_ 1:1

10. A, B, C complete a work in 15, 20 and 30 days. They work together for sometime after which C left. A total of 18000 rs is paid for the work and B gets 6000 rs more than C. For how many days did A work?
- A) 8 days  
B) 10 days  
C) 12 days  
D) 7 days

- E) None of these.

**View Answer****Option A****Solution:**

Total work = 60

A — 4, B — 3, C — 2

let A &amp; B work for x days

Then work done by A =  $4x$ B =  $3x$ C =  $60 - (4x + 3x)$ 

So ratio of their share

 $4x : 3x : 60 - 7x$ Difference between b and c =  $3x - (60 - 7x) = 10x - 60$  $(10x - 60)/60 * 18000 = 6000$ so,  $x = 8$ 

1. B takes twice time as A to complete a work and C takes thrice time as B to complete a work. If Rs6000 is given to them to complete a work together then B gets how much amount?
- A) Rs1800  
B) Rs3600  
C) Rs600  
D) Rs3000  
E) Rs1200

**View Answer****Option A****Solution:**

.	B.....A	B.....A
.	2.....1	1.....3
Days	A.....B.....C	
.	1.....2.....6	
Efficiency	6.....3.....1	
.	3/10 * 6000 = 1800	

2. A & B can do a piece of work in 80 days. B & C can do same work in 50 days and C & A can do same work in 60 days. Find in how many days they all together can complete that work?

- A) 40 (40/59)  
 B) 60 (40/59)  
 C) 36 (40/59)  
 D) 25 (40/59)  
 E) 26 (40/59)

[View Answer](#)

**Option A**

**Solution:**

$$\text{LCM} = 2400$$

$$A + B = 80 \dots \dots \dots 2400/80 = 30$$

$$B + C = 50 \dots \dots \dots 48$$

$$C + A = 60 \dots \dots \dots 40$$

$$2(A + B + C) = 118$$

$$A + B + C = 59$$

So  $2400/59$  days

3. A & B separately can do a piece of work in 9days and 12days respectively. If they work for a day alternatively, A starts the work, in how many days will the work will get completed?  
 A)  $12(1/4)$   
 B)  $10(1/4)$   
 C)  $8(1/6)$   
 D)  $10(5/6)$   
 E)  $9(1/6)$

[View Answer](#)

**Option B**

**Solution:**

$$\begin{array}{ll} A=9 & 4 \\ B=12 & 3 \end{array} \quad [\text{LCM}=36] \\ \text{2 days alternate} \quad (4+3)=7 \\ \text{days} \\ \begin{array}{ll} 2*5 & 7*5 \\ 10\text{days} & 35\text{days} \end{array} \\ \text{now A's turn so- } 10(1/4) \text{ days}$$

4. 4men and 6boys earn Rs1600 in 5days, 3men and 7boys earn Rs1740 in 6days, in what time will 7men and 6boys earn Rs3760?  
 A) 4days

- B) 6days  
 C) 8days  
 D) 10days  
 E) 5days

[View Answer](#)

**Option C**

**Solution:**

$$4M + 6B =$$

$$1600/5 = 320 \dots \dots \dots (1)$$

$$3M + 7B =$$

$$1740/6 = 290 \dots \dots \dots (2)$$

FROM EQUATION (1) AND  
 (2) WE GET

$$(4*7)B - (3*6)B = 290*4 - 320*3$$

$$B = \text{Rs}20 \dots \dots \text{put in (1)}$$

$$M = \text{Rs}50$$

now required number of days

$$3760/(7*50+6*20) = 3760/470 = 8\text{days}$$

5. A tap take 42hrs extra to fill a tank due to a leakage equivalent to half of its inflow. The inlet pipe alone can fill the tank in how many hour?  
 A) 42hrs  
 B) 21hrs  
 C) 36hrs  
 D) 28hrs  
 E) 30hrs

[View Answer](#)

**Option A**

**Solution:**

.	Without leak
leak	With leak
Efficiency	2
.....1	
Time	1
.....2	
	+1 == 42hours
So 42hours	

6. A tank can be filled with two pipes in 30minutes and 45minutes. When the tank was empty the two pipes A and B were



10. A can write 75 pages in 25 hrs. A and B together can write 135 pages in 27 hrs. In what time can B write 42 pages?

- A) 17
- B) 19
- C) 23
- D) 21
- E) 20

[View Answer](#)

#### Option D

##### Solution:

A can write  $75/25 = 3$  pages in 1 hr

A+B can  $135/27 = 5$  pages in 1 hr

B can write  $5-3 = 2$  page in 1 hr

$42/2 = 21$  hrs

1. A & B can separately finish the work in 30 days and 50 days respectively. They worked together and A left the work, so B complete the remaining work in 10 days. Find after how many days A left the work?

- A) 10 days
- B) 12 days
- C) 15 days
- D) 20 days
- E) 18 days

[View Answer](#)

#### Option C

##### Solution:

$A = 30 \dots 5$

$B = 50 \dots 3$  (LCM = 150)

$A + B = 8$

B's work in 10 days =  $3 * 10 = 30$

Means they together did ..... 120  
 $120/8 = 15$  days

2. A is 20% more efficient than B and 50% more efficient than C. If they together can

do a work in 24 days then find in how many days B alone can do the work?

- A) 60 days
- B) 72 days
- C) 90 days
- D) 180 days
- E) 100 days

[View Answer](#)

#### Option B

##### Solution:

.	A .....	B	A.....C
---	---------	---	---------

Efficiency	6.....5	3.....2
------------	---------	---------

Days	5.....6	2.....3
------	---------	---------

Days A : B : C

.	10 12 15
---	----------

A = 10.....6

B = 12.....5 .... (LCM = 60)

C = 15.....4

A+B+C = 15

$60/15 = 4$

$4 = 24$

$1 = 6$

$B = 12 = 12 * 6 = 72$  days

3. A can make 10000 papers in an hour B can make 8000 papers in an hour. Find in how many days they both can make 5,90,000 papers, if A do work for 7 hours and B do work for 6 hours?

- A) 4 days
- B) 3 days
- C) 5 days
- D) 6 days
- E) 7 days

[View Answer](#)

#### Option C

##### Solution:

A's 1 hr work = 10,000

7 hr work = 70,000

B's 1 hr work = 8000

6 hr work = 48,000

Total work of A & B of 1 day =

$70,000 + 48,000 = 1,18,000$

$590000 / 118000 = 5$  days

4. 7 men and 5 women can do a work in 6 days. Also 6 men and 7 women can do same work in 6 days. Find in how many days will 2 men & 2 women can finish the work?

A) 19days  
B) 15days  
C) 10days  
D) 14days  
E) 22days

### **View Answer**

## Option A

**Solution:**

5. A & B can do a work in 18 days. They started work together and A left after 7 days and B did the remaining work in 33 days. Find in how many days A can alone do the work?

A) 18  
B) 54  
C) 27  
D) 36  
E) 32

## **View Answer**

### **Option C**

**Solution:**

let total work = 18

Efficiency of A & B's work of 1 day  $\equiv 1$

In 7 days they complete  $\frac{7}{7} = 1$  work.

Remaining = 18-7 = 11  
 B do 11 work = 33 days  
 1 work = 3days  
 18work = 54days  
 So ..... A+B =  
 18.....3              (LCM = 54)  
 .              B = 54.....1  
 So A = 3-1 = 2  
 A = 54/2 = 27days

6. A tap can fill a tank in 16 hrs but due to a leak it takes 6 hrs more. If leakage withdraw 9ltr water in an hour than find the quantity of tank?

  - A) 520ltr
  - B) 528ltr
  - C) 536ltr
  - D) 544ltr
  - E) 576ltr

### **View Answer**

## Option B

### Solution:

$$\begin{array}{rcl}
 A = 16 & \dots & 11 \\
 176) & & \\
 A+B=22 & \dots & 8 \\
 \text{So } B = 11-8 = 3 \\
 176/3 * 9 = 528 \text{ltr.}
 \end{array}$$

7. A & B can do a work in 35 days and 45 days respectively. They worked for 10 days and after then they complete the work with the help of C in 15 days. If they all get Rs 770. Then find the share of C?

A) 330  
B) 270  
C) 190  
D) 170  
E) 250

### **View Answer**

## **Option D**

### Solution:

$$\begin{array}{rcl} A = 35 & \dots & 11 \\ B = 45 & \dots & 9 \end{array} \quad (\text{LCM} = 385)$$

$$A+B=20$$

$$20*10 = 200$$

$$\text{Remaining } 385 - 200 = 185$$

This work is completed in 5 days. So

$$185/5 = 37$$

$$A \& B \text{ 5 days work} = 20*5 = 100$$

$$C's \text{ 5 days work} = 85$$

$$A \dots B \dots C$$

$$11*15 \quad 9*15 \quad 85$$

$$165 \quad 135 \quad 85$$

$$33 \quad 27 \quad 17$$

$$C's \text{ share} = 17/77 * 770 = 170$$

8. 1 man or 2 women or 3 children can do a work in 55 days. Find in how many days 1 man and 1 woman and 1 child can do the work?
- A) 30days  
B) 24days  
C) 25days  
D) 28days  
E) 32days

[View Answer](#)

#### Option A

**Solution:**

$$1M = 55 \quad 1$$

$$2W = 55 \quad 1 \quad 55$$

$$2C = 55 \quad 1$$

We need 1 day work of ...  $1M + 1W + 1C =$

$$1+1/2+1/3 = 11/6$$

$$\text{So} \dots 55/(11/6) = 55/11 * 6 = 30$$

DAYs

9. A can a work in 50 days and B is 50% efficient than A. find in how many days A and B together can complete the work?
- A) 30  
B) 40  
C) 50  
D) 33(1/3)  
E) 16(2/3)

[View Answer](#)

#### Option D

**Solution:**

B is 50% efficient than A

$$\dots A \dots B$$

$$\text{Efficiency} \quad 2 \dots 1$$

$$\text{Days} \quad 1 \dots 2$$

$$1 == 50 \text{ . So } 2 == 100$$

$$A = 50 \dots 2 \quad (\text{LCM} = 100)$$

$$B = 100 \dots 1$$

$$A + B = 3$$

$$100/3 = 33(1/3) \text{ days.}$$

10. A and B can do a work in 60 days. B and C can do same work in 40 days and C and A can do same work in 50 days. Find in how many days will A, B and C work together will finish the work?

$$A) 32(16/37)$$

$$B) 42(14/37)$$

$$C) 33(7/37)$$

$$D) 43(9/37)$$

$$E) 39(7/37)$$

[View Answer](#)

#### Option A

**Solution:**

$$A+B = 60 \dots 10$$

$$B+C =$$

$$40 \dots 15 \dots (\text{LCM})$$

$$= 600$$

$$C+A = 50 \dots 12$$

$$2(A+B+C) \quad 37$$

$$A+B+C = 37/2$$

$$= 600/37 * 2 = 32(16/37)$$

1. A and B can do a piece of work in 25 days and 50 days respectively. If they start working together and a person C alone does the work for last 4 days then work is done in 14 days. Find in how many days C can do the work alone?
- A) 8 days  
B) 10 days  
C) 20 days  
D) 25 days  
E) 15 days

[View Answer](#)**Option B****Solution:**

$$A=25 \text{ ----- } 2 \text{ (Total work=50)}$$

$$B=50 \text{ ----- } 1$$

$$A+B = \text{----- } 3$$

A and B did the work for  $14-4=10$  days

$$(A+B)*10=3*10=30 \text{ work}$$

$$\text{remaining work}=50-30=20$$

C did 20 work in 4 days;

$$1 \text{ day} = 5 \text{ work}$$

$$\text{so } 50 \text{ work in } 10 \text{ days}$$

2. A and B can do a work in 60 days, B and C can do a work in 40 days and C and A can do the same work in 50 days. Find in how many days they together can complete the work?
- A) 32 ( $16/37$ ) days  
 B) 42 ( $16/37$ ) days  
 C) 32 ( $16/27$ ) days  
 D) 42 ( $16/27$ ) days  
 E) 32 ( $16/17$ ) days

[View Answer](#)**Option A****Solution:**

$$A+B = 60 \text{ ----- } 10 \text{ (Total Work = 600)}$$

$$B+C = 40 \text{ ----- } 40$$

$$C+A = 50 \text{ ----- } 12$$

$$2(A+B+C)=\text{----- } 37$$

$$A+B+C = 37/2$$

$$600*2/37=32 \text{ ( $16/37$ )}$$

3. 1 man or 2 women or 3 children can do a work in 66 days. Find in how many days 1 man and 1 women and 1 child can do the same work?
- A) 24 days  
 B) 28 days  
 C) 30 days  
 D) 36 days  
 E) 38 days

[View Answer](#)**Option D****Solution:**

$$1 M \text{ ----- } 66 \text{ ----- } 1 \text{ (Total Work=66)}$$

$$2 W \text{ ----- } 66 \text{ ----- } 1$$

$$3 C \text{ ----- } 66 \text{ ----- } 1$$

$$1 \text{ day work of } 1 M + 1 W + 1 C = 1 + 1/2$$

$$+1/3 = 11/6$$

$$66 / (11/6) = 36 \text{ days}$$

4. A and B can do a job in 25 days. They started working together and after 10 days B left the work. Then A did the remaining work in 60 days. Then find in how many days B alone can do the same work?
- A) 30 days  
 B) 33 ( $1/3$ ) days  
 C) 40 days  
 D) 45 days  
 E) 47 days

[View Answer](#)**Option B****Solution:** Let total work = 25

$$1 \text{ day work of } A \text{ and } B = 1$$

$$\text{Remaining work after } 10 \text{ days} = 25-10=15$$

$$B \text{ do } 15 \text{ work in } 60 \text{ days}$$

$$\text{means } 25 \text{ work in } 60 * 25 / 15 = 100 \text{ days}$$

$$A+B = 25 \text{ ----- } 4 \text{ (Total Work= 10)}$$

$$B = 100 \text{ ----- } 1$$

$$A = \text{----- } 4-1=3$$

$$B=100/3$$

5. A tap can fill a tank in 30 minutes. But due to leakage in tank it takes 36 minutes to fill the tank. If leakage point withdraws 20 litre water every minute then find the capacity of tank.
- A) 2400 litre  
 B) 3000 litre  
 C) 3600 litre  
 D) 4000 litre  
 E) 4500 litre

[View Answer](#)**Option C****Solution:** Let leakage = B

$$A = 30 \text{ ----- } 6 \text{ (Total = 180)}$$

$$A+B=36 \text{ ----- } 5$$

$$B= \text{----- } (6-5=1)$$

B will empty the tank in 180 minutes  
(1=180)

$$\text{capacity} = 180*20 = 3600 \text{ litres}$$

6. A and B can do a work in 40 days and 60 days respectively. They start work together and work for 15 days then C joins them and they finish the work in 20 days. If they get total wage of Rs 720 then find the share of C.
- A) Rs 100  
B) Rs 240  
C) Rs 360  
D) Rs 120  
E) Rs 150

[View Answer](#)**Option D****Solution:**

$$A=40 \text{ ----- } 3 \text{ (Total = 120)}$$

$$B=60 \text{ ----- } 2$$

$$A+B= \text{----- } 5$$

In 15 days =  $5*15=75$  work

45 remaining which is completed in 5 days, means

1 day work of A, B and C is 9

1 day work of C=  $9-5=4$

5 day work of C=20

ratio of wages A:B:C =  $60(3*20) :$

$40(2*20) : 20 = 3:2:1$

Share of C=  $1/6*720=120$

7. 5 men and 7 women can complete a work in 13 days while 4 men and 6 women can complete it in 16 days. Find in how many days will 2 men and 6 women complete the work?
- A) 24 days  
B) 22 days

C) 20 days

D) 28 days

E) 26 days

[View Answer](#)**Option E****Solution:**

$$5 M + 7W = 13 \text{ days}$$

$$65 M + 91 W = 1 \text{ day} \dots \dots \dots (1)$$

$$4 M + 6 W = 16 \text{ days}$$

$$64 M + 96 W = 1 \text{ day} \dots \dots \dots (2)$$

From (1) and (2)

$$1 M = 5W$$

$$\text{Put in 1, } 5M = 25W$$

$$\text{So } 25W + 7W = 13 \text{ days}$$

$$32 W = 13$$

$$1 W = 13/32 \text{ days}$$

$$\text{So } 16 W = 13/32 * 16 = 26 \text{ days}$$

8. In a camp, there is a food for 400 students for 30 days but after 20 days, 200 students left. For how many more days the food will last now?
- A) 10 days  
B) 30 days  
C) 40 days  
D) 20 days  
E) 5 days

[View Answer](#)**Option A****Solution:**

$$400*30 = 400*20 + (200*x)$$

$$12000 = 8000 + 200x$$

Solve,  $x = 20$  days

Total days =  $20+20 = 40$  days

More days =  $40-30 = 10$  days

9. A group of men decided to do a work in 10 days but five of them did not come. If the rest of the group completed the work in 12 days, find the original number of men.
- A) 24  
B) 22

- C) 30  
D) 28  
E) 26

[View Answer](#)

### Option C

#### Solution:

$$x \cdot 10 = (x-5) \cdot 12$$

Solve,  $x = 30$  men

10. A is thrice good a workman as B and B is half as good as workman as C. Find the ratio of days in which A, B and C can complete work alone respectively.
- A) 3 : 6 : 2  
B) 2 : 6 : 3  
C) 2 : 5 : 3  
D) 4 : 6 : 3  
E) 1 : 2 : 4

[View Answer](#)

### Option B

#### Solution:

efficiency	A : B	B : C
.	3 : 1	1 : 2
Efficiencies	$A : B : C = 3 : 1 : 2$	
So days	$= 1/3 : 1/1 : 1/2 = 2 : 6 : 3$	

1. A & B can do a work in 60days. B & C can do same work in 30 days. Find in how many days A alone can do the work if C & A can do that work in 40 days?
- A) 240  
B) 360  
C) 120  
D) 480  
E) 180

[View Answer](#)

### Option A

#### Solution:

LCM = 120  
 $A+B=60 \dots 120/60 = 2$

$$\begin{aligned} B+C &= 30 \dots 4 \\ C+A &= 40 \dots 3 \\ 2(A+B+C) &= 9 \\ A+B+C &= 9/2 \\ (A+B+C) - (B+C) &= 9/2 - 4 = 1/2 \\ 120/1/2 &= 240 \text{ days Ans.} \end{aligned}$$

2. A contractor takes a contract to do a work in 30days by 30 men. He found that 10 men were absent in first 10 days. If all men become regular after 10 days then how many more men will be required to complete the work on time?
- A) 35  
B) 5  
C) 25  
D) 7  
E) 6

[View Answer](#)

### Option B

#### Solution:

$$\begin{aligned} \text{Total work} - 30 \cdot 30 &= 900 \\ \text{1st 10 day work} - 20 \cdot 10 &= - 200 \\ \dots & \quad 700 \\ \text{Now } 700 \text{ work have to complete in 20 days.} \\ \text{So } - 700/20 &= 35 \text{ men will be require. 30 men are already working so now we need only 5 men.} \end{aligned}$$

3. A tap can fill a tank in 18 hours, due to leakage it takes 18hours more to fill the tank. If leakage empty 40ltr water in 1hour then find the capacity of tank?
- A) 720ltr  
B) 480ltr  
C) 1400ltr  
D) 1440ltr  
E) 1320ltr

[View Answer](#)

### Option D

#### Solution:

LCM = 36  
 $A = 18 \dots 2$

$$A+B = 1 - 1$$

$$B = 1$$

B removes 1 qty in 1 hour so he will empty in 36 hour.  
 $40 * 36 = 1440 \text{ ltr.}$

4. A man & a woman can do a job in 40days. They do work together for 12 days after it with the help of a child they complete the work in 18days. If they get Rs2000 then find how much money will child get?
- A) 600
  - B) 900
  - C) 500
  - D) 1100
  - E) 700

[View Answer](#)

**Option C**

**Solution:**

$$\text{LCM} = 120$$

$$A = 40 \dots \dots \dots 120/40 = 3$$

$$B = 60 \dots \dots \dots 2$$

.

5

$$12*5 = 60$$

Remaining 60 will complete in 6 days. So  $60/6 = 10$ . Now this 10 work will be complete by together .

Child do 5 work in a day . now the ratio of the total work of all them.

$$A \dots \dots \dots B \dots \dots \dots C$$

$$3*18 \dots \dots 2*18 \dots \dots 5*6$$

$$54 \dots \dots 36 \dots \dots 30$$

$$9 : 6 : 5$$

$$\text{Child} - 5/20 * 2000 = 500$$

5. If a man or 2 women or 3 children can do a work in 33days, then find in how many days will 1 man and 1 woman and 1 child do the work?
- A) 18days
  - B) 24days
  - C) 20days
  - D) 15days
  - E) 22 days

[View Answer](#)

**Option A**

**Solution:**

$$\text{LCM} = 33$$

$$1 \text{ man} = 33 \dots \dots \dots 1$$

$$2 \text{ woman} = 33 \dots \dots \dots 1$$

$$3 \text{ child} = 33 \dots \dots \dots 1$$

Now we need 1 man + 1 woman+ 1 child

$$= 1 + 1/2 + 1/3 = 11/6$$

$$33/11*6 = 18 \text{ days}$$

6. 40 men undertook to do a work in 50days. After 25days they found only  $1/3$ rd of the work is complete. Find how many more men they need to complete the work on time.
- A) 40
  - B) 50
  - C) 60
  - D) 70
  - E) 30

[View Answer](#)

**Option A**

**Solution:**

$$40 * 25 / 1/3 = (40+x) * 25 / 2/3$$

$$80 = 40+x$$

$$X = 40 \text{ Ans}$$

7. 33 men can do a job In 30 days. If 44 men started the job together and in the end of the day one person left daily. Then what is the minimum number of days required to complete the work?
- A) 21
  - B) 42
  - C) 45
  - D) 44
  - E) 36

[View Answer](#)

**Option D**

**Solution:**

$$\text{total work} = 33 * 30 = 990$$

$$44 + 43 + 42 = 990$$

Now : sum =  $x/2 (20+(x-1) D)$

$$A = 44, D = 43-44 = -1$$

$$990 = x/2 ( 2*44 + (x-1) - 1)$$

$$X = 44 \text{ Ans.}$$

8. 5 men can do a piece of work in 2 hours, while 7 women can do it in 3 hours or 9 boys do it in 4 hours.  
How long would take by 1 man, 1 woman, 1 boy together to do the work?  
 A)  $1260/221$   
 B)  $1270/231$   
 C)  $1221/260$   
 D)  $1260/236$   
 E)  $1234/241$

[View Answer](#)

### Option A

#### Solution:

1 man complete the work in  $= 2*5 = 10$  hrs.

Same 1 woman = 21 hrs

1 boy = 36 hrs

LCM = 1260

M = 10 .....  $1260/10 = 126$

W = 21 ..... 60

B = 36 ..... 35

..... 221

$= 1260/221$  Ans

9. If 30 men and 14 boys can reap a field in 21 days. In how many days will 20 men and 4 boys reap it? (When 3 men do as much work as 5 boys.)  
 A) 36 days  
 B) 30 days  
 C) 42 days  
 D) 45 days  
 E) 32 days

[View Answer](#)

### Option A

#### Solution:

3 men = 5 boys

$M/B = 5/3$

Total work =  $(30 M + 14B) * 21$

$$(30*5 + 14*3) * 21$$

$$= 4032$$

$$\text{Now: } 4032/20*5+4*3 = 36 \text{ days.}$$

10. A, B, and C can do a work in 18, 30, and 45 days respectively. If they start work with A works the first day, C the second day and B the third and fourth day. If this process continues than find in how many days they will complete the work?  
 A)  $26 \frac{2}{3}$  days  
 B) 28 days  
 C)  $27 \frac{2}{3}$  days  
 D) 27 days  
 E)  $27 \frac{1}{3}$  days

[View Answer](#)

### Option C

#### Solution:

A = 18, B = 30, C = 45

LCM = 90

A =  $90/18 = 5$ , B = 3, C = 2

1st day ..... 2nd day ..... 3rd day

A = 5 ..... C = 2 .....  
 B = 3+3

than

4 days work =  $5 + 2 + 6 = 13$

Make it near total (90)

$4*6 ..... 13*6$

24 ..... 78

A  $\rightarrow$  1 ..... 5

B  $\rightarrow$  1 ..... 2

C  $\rightarrow$  1 ..... 3

Add

$24+1+1+1=27$

days .....  $(78+5+2+3) = 88$  days

Now  $90-88 = 2$  work pending

B does 3 work in 1 day, so 2 in  $2/3$ . So total  $27 \frac{2}{3}$  days

1. A can do  $2/5$  work in 8 days. B can do  $3/5$  work in 18 days. In how many days together they can do  $3/4$  work?  
 A) 8 days  
 B) 9 days

- C) 7 days  
D) 10 days  
E) 12 days

[View Answer](#)

**Option B**  
**Solution:**

A –  $\frac{2}{5}$  work in 8 days  $\Rightarrow$  total=  $8 * \frac{5}{2} = 20$  days  
B-  $\frac{3}{5}$  work in 18 days  $\Rightarrow$  total- 30 days  
A+B together =  $30 * 20 / 50 = 12$  days  
hence  $\frac{3}{4} * 12 = 9$  days

2. A and B can do a piece of work in 72 days. B and C can do it in 120 days. C and A can do it in 90 days. In how many days all three together can do the work?  
 A) 80 days  
 B) 120 days  
 C) 100 days  
 D) 60 days  
 E) 150 days

[View Answer](#)

**Option D**  
**Solution:**

(total work=360)  
 $A+B=72 \text{ ----- } 5$   
 $B+C=120 \text{ ----- } 3$   
 $C+A=90 \text{ ----- } 4$   
 $\Rightarrow 2(A+B+C)=12$   
 $A+B+C=6$   
 total days= $360/6=60$  days

3. Working efficiency of A and B for completing a piece of work is in the ratio 2:3. Find the number of days they will take to complete the work together, if B takes 30 days less than A.  
 A) 24 days  
 B) 48 days  
 C) 60 days  
 D) 36 days  
 E) 40 days

[View Answer](#)

**Option D**

**Solution:**

A:B (efficiency)=2:3  
 $A:B(\text{days})=3:2$   
 $\text{Diff}=1=30$   
 $2=60$   
 $3=90$   
 $A=90 \text{ days};$   
 $B=60 \text{ days}$   
 together  $A+B= 36 \text{ days}$

4. 6 men and 10 women can do a work in 8 days. 4 men and 12 women can do same work in 10 days. Find in how many days 3 men and 5 women can do the work.  
 A) 12 days  
 B) 16 days  
 C) 20 days  
 D) 24 days  
 E) None of these

[View Answer](#)

**Option B**  
**Solution:**

$6m+10w=8 \Rightarrow 48m+80w=1 \text{ ---- (i)}$   
 $4m+12w=10 \Rightarrow 40m+120w=1 \text{ ---- (ii)}$   
 equate (i) and (ii)  
 we get,  $1m=5w$ , put this in (i)  
 $30w+10w=8 \Rightarrow 40m=8 \text{ days}$   
 hence  $3m+5w=20w=8*40/20=16$  days

5. A certain number of men can complete a job in 30 days. If there were 10 men less it would be completed in 30 days more. How many men are required to complete this job in 20 days?  
 A) 30 men  
 B) 20 men  
 C) 40 men  
 D) 10 men  
 E) 25 men

[View Answer](#)**Option A****Solution:**

$$x*30 = (x-10)*60 \Rightarrow x=20 \text{ men}$$

now  $20*30=x*20 \Rightarrow x=30 \text{ men}$

6. A and B can do a work in 30 days. They started together but after 10 days B left the work. If A did the remaining work in 40 days, then find in how many days B can alone do the work?
- A) 40 days
  - B) 50 days
  - C) 30 days
  - D) 60 days
  - E) 55 days

[View Answer](#)**Option D****Solution:**

$$A+B=30$$

let total work = 30  
 1 day work of  $A+B=1$   
 10 days – 10  
 remaining work = 20  
 A did 20 work in 40 days  
 so 30 work is done in 60 days  
 $A+B=30 \text{ ----- 2 (total work = 60)}$   
 $A = 60 \text{ ----- 1}$   
 $B = 2-1=1 \Rightarrow 60/1=60 \text{ days}$

7. A man and a boy can complete a piece of work in 30 days. They both started the work, but in the last 6 days, only boy does the work and in this way the work got completed in 34 days. How long does the man take alone to complete the work?
- A) 30 days
  - B) 45 days
  - C) 60 days
  - D) 90 days
  - E) 85 days

[View Answer](#)**Option B****Solution:**

$$1M + 1B = 30 \text{ days}$$

let total work = 30  
 1 day work of 1 M+ 1B=1  
 they work together for  $34-6=28$  days, so  
 they did 28 work together  
 Remaining work =  $30-28=2$   
 boy does 2 work in 6 days  
 30—90 days  
 $M+B=30 \text{ ----- 3}$   
 $B=90 \text{ ----- 1 (total = 90)}$   
 $M= 3-1=2$   
 $90/2=45 \text{ days}$

8. The average wage of 200 men is Rs 300. Later on it was discovered that the wage of two workers were misread as 50 and 30 instead of 500 and 300. The correct average was?
- A) 302.6
  - B) 303.6
  - C) 304.6
  - D) 305.6
  - E) 306.6

[View Answer](#)**Option B****Solution:**

$$200*300=60000$$

new correct total =  $60000-50-30+500+300 = 60720$   
 $\text{Avg.} = 60720/200 = 303.6$

9. A, B and C separately can do a piece of work in 11 days, 20 days and 55 days respectively. In how many days the work will be completed if A is assisted by B and C on alternate day?
- A) 2 days
  - B) 4 days
  - C) 6 days
  - D) 8 days
  - E) 10 days

[View Answer](#)

**Option D****Solution:**

A=11 ----- 20 (total work=220)

B=20 ----- 11

C=55 ----- 4

A+B=31

A+C=24

hence 2 days work = $31+24=55$

total work  $220=55*4$  hence total days

= $2*4=8$  days

10. A can do a work in 30 days and B in 40 days. They together work for 12 days and work is completed by C in 3 days. Find in how many days C can do the same work alone?
- A) 10
  - B) 12
  - C) 8
  - D) 15
  - E) 16

**View Answer**

**Option A****Solution:**

A= 30 ----- 4 (Total=120)

B=40 ----- 3

A+B=7

in 12 days  $7*12=84$  work is done.

Remaining = $120-84=36$

this is done by C in 3 days. Means C does [REDACTED]

12 work in 1 day. Means 120 work in  
 $120/12=10$  days

# 120+ PIPES & CISTERN QUESTIONS WITH SOLUTION

ADDA.COM

A Tank is filled with the mixture of Milk and Water in the ratio of 3:2 up to 2/5 of its capacity. The tank has two inlet pipes i.e., Milk and Water inlets. Milk and Water pipe can fill an empty tank in 12 and 18 hours respectively. Now both pipes are opened simultaneously and closed after the Tank is completely filled, then what is the ratio of Milk and Water in the full Tank if it can accommodate 250 Litre?

- A. 1:1
- B. 2:3
- C. 3:2
- D. 5:4
- E. None

#### Answer & Explanation

Answer – C. 3:2

#### Explanation :

$$\text{Initial Milk} = \frac{2}{5} * 250 * \frac{3}{5} = 60 \text{ L}$$

$$\text{Water} = \frac{2}{5} * 250 * \frac{2}{5} = 40 \text{ L}$$

$$\text{Rest of Tank} = 150 \text{ L}$$

Pipes are opened then can fill rest of tank in  $\frac{108}{25}$  hours

$$\text{H/W} = \text{constant}$$

$$\text{then } (108/25)/12/x = (108/25)/18(150-x)$$

$$X = 90 = \text{Milk, Water} = 60$$

$$\text{Final ratio} = 3:2$$

An Inlet pipe can fill a tank in 5 hours and an Outlet pipe can empty  $\frac{4}{7}$  of the same Tank in 4 hours. In the first hour only Inlet pipe is [REDACTED] outlet pipe [REDACTED] alternately every hour until the tank is filled. Then in how many hours does the Tank gets filled?

- A. 17 Hours 17 Min
- B. 34 Hours  $\frac{60}{7}$  Min
- C. 35 Hours 15 Min
- D. 36 Hours  $\frac{60}{7}$  Min
- E. None

#### Answer & Explanation

Answer – B. 34 Hours  $\frac{60}{7}$  Min

#### Explanation :

$$2 \text{ hours work} = \frac{1}{5} - \frac{1}{7} = \frac{2}{35}$$

$$34 \text{ hours work} = \frac{34}{35}$$

$$\text{remaining work} = \frac{1}{35}$$

$$\text{Now its inlet pipe turn} = \frac{1}{35} * 5 = \frac{1}{7} \\ = 34 \text{ hours} + \frac{60}{7} \text{ min}$$

A Tank is already filled up to X% of its capacity. An Inlet pipe can fill Full Tank in 30 minutes and an Outlet pipe can empty Full Tank in 20 Minutes. Now both pipes are opened then the Tank is emptied in 24 Minutes. Then initially up to what % of its capacity is Tank filled?

- A. 40%
- B. 48%
- C. 50%
- D. 60%
- E. Cannot be determined

#### Answer & Explanation

Answer – A. 40%

#### Explanation :

$$\frac{1}{30} - \frac{1}{20} = -\frac{1}{60}$$

Full Tank can be emptied 60 Minutes  
In 24 minutes 40% of Tank can be emptied.

Two Inlet Pipes A and B together can fill a Tank in 'X' minutes. If A and B take 81 minutes and 49 minutes more than 'X' minutes respectively, to fill the Tank. Then They can fill the  $\frac{5}{7}$  of that Tank in how many minutes?

- A. 45 Minutes
- B. 49 Minutes
- C. 63 Minutes
- D. 81 Minutes
- E. None

#### Answer & Explanation

Answer – A. 45 Minutes

#### Explanation :

Time taken by two pipes to fill full Tank is =  $\sqrt{ab}$  min = 63 min

$$\frac{5}{7} \text{ Tank} = 63 * \frac{5}{7} = 45 \text{ min}$$

Pipe A can fill a Tank in 18 Hours, Pipe B can empty a Tank in 12 Hours, Pipe C can fill Tank in 6 Hours. The Tank is already filled up to  $\frac{1}{6}$  of its capacity. Now Pipe A is opened in the First Hour alone, Pipe B is opened in the Second Hour alone and Pipe C is opened in the Third Hour alone. This cycle is repeated until the Tank gets filled. Then in How many Hours does the rest of Tank gets filled?

- A. 15 Hours
- B. 18 Hours
- C. 20 Hours

D. 24 Hours

E. None

#### Answer & Explanation

Answer – B. 18 Hours

**Explanation :**

In First Hour Tank filled =  $1/6 + 1/18$

Second Hour =  $1/6 + 1/18 - 1/12$

Third Hour =  $1/6 + 1/18 - 1/12 + 1/6 = 11/36$  is filled

$25/36$  is left

From then 3 hours work =  $1/18 - 1/12 + 1/6 = 5/36$

$5 * 3$  Hours =  $5 * 5/36 = 25/36$

Total =  $5 * 3 + 3 = 18$  Hours

- If the ratio of Rate of filling of two Pipes A and B is 3:2. If together they can fill a Tank  $\frac{5}{6}$ th of Tank in 20 minutes. Then in how many does A alone can fill the Tank?

A. 20 Minutes

B. 30 Minutes

C. 40 Minutes

D. 50 Minutes

E. 60 Minutes

#### Answer & Explanation

Answer – C. 40 Minutes

**Explanation :**

$5/6$  tank = 20 Min

Full tank = 24 Min

$1/2x + 1/3x = 1/24$

$x = 20$ , A =  $2x = 40$  Min

- Pipe A, B and can fill a Full Tank in 24,36 and 48

are Op

is already filled up to  $\frac{1}{6}$  of its capacity. A and B are opened for only First 6 Minutes and closed thereafter. Then C alone filled remaining Tank. Then in total how many Minutes does C filled the Tank?

A. 12 Minutes

B. 14 Minutes

C. 16 Minutes

D. 18 Minutes

E. 20 Minutes

#### Answer & Explanation

Answer – E. 20 Minutes

**Explanation :**

$6 * (1/24 + 1/36 + 1/48) + x/48 = 5/6$

$x = 14$  Min

$C = 6 + 14 = 20$

Pipe A and B can fill a Tank alone in 12 Hours and 6 Hours respectively. Another Pipe C can empty the same Tank alone in 9 Hours. In an empty Tank for the First hour, Pipe A is opened alone, Second Hour pipe B is opened alone, Third Hour pipe C is opened alone. This process is continued until the Tank is filled. Then Pipe A is opened for How many Hours?

A. 7 Hours

B. 7 Hours 10 Min

C. 7 Hours 15 Min

D. 7 Hours 20 Min

E. None

#### Answer & Explanation

Answer – D. 7 Hours 20 Min

**Explanation :**

3 hours work =  $1/12 + 1/6 - 1/9 = 5/36$

$7 * 3$  hours work =  $35/36$

remaining work =  $1/36$

Now its pipe A turn =  $1/36 * 12 = 1/3$  hour

Total = 7 hours + 20 min

Pipe A and B can fill a Tank alone in 48 Hours and 24 Hours respectively. Another Pipe C can empty the same Tank alone in 36 Hours. In an empty Tank for the First hour, Pipe A is opened alone, Second Hour pipe B is opened alone, Third Hour pipe C is opened alone. This process is continued until the Tank is filled. Then Pipe B is opened for How many Hours?

A. 28 Hours

B. 28 Hours 10 Min

C. 29 Hours

D. 29 Hours 10 Min

E. None

#### Answer & Explanation

Answer – B. 28 Hours 10 Min

**Explanation :**

3 Hours work =  $(1/48 + 1/24 - 1/36) = 5/144$

$28 * 3$  hours =  $140/144$

remaining part =  $4/144 = 1/36$

Now it's A turn =  $1/36 - 1/48$

=  $1/144$  left

Now it's B turn =  $1/144 * 24 = 1/6$  hour = 10 min

Total B = 28 Hours + 10 Min

Two Pipes A and B together can fill a Tank in 'X' minutes. If 'A' is Inlet Pipe can Fill the Tank alone in 40 minutes less than

**'X' minutes and 'B' is Outlet pipe can empty the Tank alone in 30 minutes less than 'X' minutes. Then together they can fill the empty Tank in how many minutes?**

- A. 48 Minutes
- B. 54 Minutes
- C. 60 Minutes
- D. 70 Minutes
- E. None

**Answer & Explanation**

Answer – C. 60 Minutes

**Explanation :**

$$\frac{1}{x} - \frac{1}{40} = \frac{1}{x-30}$$

$$x = 60 \text{ min}$$

**A Special pump can be used for filling as well as for emptying a Cistern. The capacity of the Cistern is  $2400\text{m}^3$ . The emptying capacity of the Cistern is  $10\text{m}^3$  per minute higher than its filling capacity and the pump needs 8 minutes lesser to Cistern the tank than it needs to fill it. What is the filling capacity of the pump?**

- A.  $40\text{m}^3/\text{min}$
- B.  $50\text{m}^3/\text{min}$
- C.  $60\text{m}^3/\text{min}$
- D.  $30\text{m}^3/\text{min}$
- E. None of the Above

**Answer & Explanation**

Answer – B.  $50\text{m}^3/\text{min}$

**Explanation :**

Filling Capacity of the Pump =  $x \text{ m/min}$   
Emptying Capacity of the pump =  $(x+10) \text{ m/min}$   
 $2400/x - 2400/(x+10) = 8$   
 $(x - 50) + (x + 60) = 0$   
 $x = 50$

**Three pipes P, Q and R can fill a Cistern in 6 hours. After working at it together for 2 hours, R is closed and P and Q can fill the remaining part in 7 hours. The number of hours taken by R alone to fill the Cistern is**

- A. 14 hours
- B. 12 hours
- C. 15 hours
- D. 18 hours
- E. None of the Above

**Answer & Explanation**

Answer – A. 14 hours

**Explanation :**

Part filled in 2 hours =  $2/6 = 1/3$

Remaining Part =  $(1 - 1/3) = 2/3$

$(P + Q)$ 's 7 hour work =  $2/3$

$(P + Q)$ 's 1 hour work =  $2/21$

R's 1 hour work =  $(P + Q + R)$  1 hour work –  $(P + Q)$  1 hour work  
 $= (1/6 - 2/21) = 1/14 = 14 \text{ hours}$

**A Cistern is two-fifth full. Pipe A can fill a tank in 10 minutes and pipe B can empty it in 6 minutes. If both the pipes are open, how long will it take to empty or fill the tank completely?**

- A. 5 minutes
- B. 4 minutes
- C. 6 minutes
- D. 8 minutes
- E. None of the Above

**Answer & Explanation**

Answer – C. 6 minutes

**Explanation :**

pipe B is faster than pipe A and so, the tank will be emptied.  
part to be emptied =  $2/5$   
part emptied by  $(A+B)$  in 1 minute =  $(1/6 - 1/10) = 1/15$   
 $1/15 : 2/5 :: 1 : x$   
 $2/5 * 15 = 6 \text{ minutes.}$

**If a pipe A can fill a tank 3 times faster than pipe B. If both the pipes can fill the tank in 32 minutes, then the slower pipe alone will be able to fill the tank in?**

- A. 128 minutes
- B. 124 minutes
- C. 154 minutes
- D. 168 minutes
- E. None of the Above

**Answer & Explanation**

Answer – A. 128 minutes

**Explanation :**

Time is taken by pipe A =  $x$   
Time is taken by pipe B =  $x/3$   
 $1/x + 3/x = 1/32$   
 $x = 128 \text{ minutes}$

**A large cistern can be filled by two pipes P and Q in 15 minutes and 20 minutes respectively. How many minutes will it take to fill the Cistern from an empty state if Q is used for half the time and P and Q fill it together for the other half?**

- A. 12 minutes  
 B. 17 minutes  
 C. 18 minutes  
 D. 19 minutes  
 E. None of the Above

**Answer & Explanation**

Answer – A. 12 minutes

**Explanation :**Part filled by P and Q =  $1/15 + 1/20 = 7/60$ Part filled by Q =  $1/20$ 

$$x/2(7/60 + 1/20) = 12 \text{ minutes}$$

- A pipe can fill a cistern in 16 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the cistern completely?

- A. 3 hours  
 B. 2 hours  
 C. 9 hours  
 D. 4 hours  
 E. None of the Above

**Answer & Explanation**

Answer – C. 9 hours

**Explanation :**In One hour pipe can fill =  $1/16$ Time is taken to fill half of the tank =  $1/2 * 16 = 8 \text{ hours}$ Part filled by four pipes in one hour =  $(8 * 1/16) = 1/2$ Required Remaining Part =  $1/2$ Total time =  $8 + 1 = 9$ 

- Two pipes P and Q can fill a tank in 10 hours and 20 hours respectively. "x" If Q separately took 25 minutes more time than "x" to fill the tank and Q took 49 minutes more time than "x" to fill the tank, then find out the value of x?

- A. 48 minutes  
 B. 35 minutes  
 C. 54 minutes  
 D. 68 minutes  
 E. None of the Above

**Answer & Explanation**

Answer – B. 35 minutes

**Explanation :**Time is taken to fill the tank by both Pipes x =  $\sqrt{a*b}$ 

$$x = \sqrt{25*49} = 5 * 7 = 35$$

- Three taps P, Q and R can fill a tank in 12, 15 and 20 hours respectively. If P is open all the time and Q, R are open for one hour each alternatively, the tank will be full in

- A. 3 hours  
 B. 2 hours  
 C. 7 hours  
 D. 4 hours  
 E. None of the Above

**Answer & Explanation**

Answer – C. 7 hours

**Explanation :** $(P + Q)$ 's 1 hour work =  $1/12 + 1/15 = 3/20$  $(P + R)$ 's 1 hour work =  $1/12 + 1/20 = 2/15$ For 2 hrs =  $(3/20 + 2/15) = 17/60$ For 6 hrs =  $(3 * 17/60) = 17/20$ Remaining Part =  $1 - 17/20 = 3/20$  filled by P and Q in 1 hour

- Pipe A fills a tank in 30 minutes. Pipe B can fill the same tank 5 times as fast as pipe

- A. If both the pipes were kept open when the tank is empty, how much time will it take for the tank to overflow?

- A. 3 minutes  
 B. 2 minutes  
 C. 5 minutes  
 D. 4 minutes  
 E. None of the Above

**Answer & Explanation**

Answer – C. 5 minutes

**Explanation :**

Total Capacity = 90L.

Tank filled in 1 minute by A = 3L

Tank filled in 1 minute by B = 15L

The capacity of the tank filled with both A and B in 1 minute = 18L.

overflow =  $90/18 = 5$  minutes.

- Two pipes P and Q can fill a cistern in 10 hours and 20 hours respectively. If they are opened simultaneously. Sometimes later, tap Q was closed, then it takes total 5 hours to fill up the whole tank. After how many hours Q was closed?

- A. 14 hours  
 B. 15 hours  
 C. 10 hours  
 D. 16 hours  
 E. None of the Above

**Answer & Explanation**

**Answer – C. 10 hours**

**Explanation :**

$$\text{Pipe P Efficiency} = 100/10 = 10\%$$

$$\text{Pipe Q Efficiency} = 100/20 = 5\%$$

$$\text{Net Efficiency} = 15\%$$

$$15x + 10(5-x) = 100$$

$$x = 10$$

**If a pipe A can fill a tank 3 times faster than pipe B and takes 32 minutes less than pipe B to fill the tank. If both the pipes are opened simultaneously, then find the time taken to fill the tank?**

A. 14 minutes

B. 12 minutes

C. 15 minutes

D. 16 minutes

E. None of the Above

**Answer & Explanation**

**Answer – B. 12 minutes**

**Explanation :**

$$3x - x = 32$$

$$x = 16$$

$$1/16 + 1/48 = 4/48$$

$$\text{Time taken to fill the tank} = 48/4 = 12 \text{ minutes}$$

**Two pipes P and Q can fill a tank in 24 minutes and 27 minutes respectively. If both the pipes are opened simultaneously, after how much time should B be closed so that the tank is full in 8 minutes?**

A. 14 minutes

B. 12 minutes

C. 15 minutes

D. 18 minutes

E. None of the Above

**Answer & Explanation**

**Answer – D. 18 minutes**

**Explanation :**

$$\text{Required time} = y(1-(t/x)) = 27(1-(8/24)) = 18 \text{ minutes}$$

**A full tank gets emptied in 8 minutes due to the presence of a leak in it. On opening a tap which can fill the tank at the rate of 9 L/min, the tank get emptied in 12 min. Find the capacity of a tank?**

A. 120 L

B. 240 L

C. 216 L

D. 224 L

E. None of the Above

**Answer & Explanation**

**Answer – C. 216 L**

**Explanation :**

$$a = 8; b = 9; C = 12$$

$$\text{Capacity of a tank} = a^*b^*c/c-a = 8^*9^*12/4 = 216 \text{ Litre.}$$

**If a pipe A can fill a tank 3 times faster than pipe B. If both the pipes can fill the tank in 42 minutes, then the slower pipe alone will be able to fill the tank in?**

A. 148 minutes

B. 124 minutes

C. 154 minutes

D. 168 minutes

E. None of the Above

**Answer & Explanation**

**Answer – D. 168 minutes**

**Explanation :**

$$\text{Time is taken by pipe A} = x$$

$$\text{Time is taken by pipe B} = x/3$$

$$1/x + 3/x = 1/42$$

$$x = 168 \text{ minutes}$$

**A large cistern can be filled by two pipes P and Q in 15 minutes and 10 minutes respectively. How many minutes will it take to fill the Cistern from an empty state if Q is used for half the time and P and Q fill it together for the other half?**

A. 6.5 minutes

B. 7.5 minutes

C. 8.5 minutes

D. 9.5 minutes

E. None of the Above

**Answer & Explanation**

**Answer – B. 7.5 minutes**

**Explanation :**

$$\text{Part filled by P and Q} = 1/15 + 1/10 = 1/6$$

$$\text{Part filled by Q} = 1/10$$

$$x/2(1/6 + 1/10) = 2/15 = 15/2 = 7.5 \text{ minutes}$$

**A pipe can fill a cistern in 8 hours. After half the tank is filled, three more similar taps are opened. What is the total time taken to fill the cistern completely?**

A. 3 hours

B. 2 hours

C. 5 hours

- D. 4 hours  
E. None of the Above

#### Answer & Explanation

Answer – C. 5 hours

**Explanation :**

In One hour pipe can fill =  $1/8$   
 Time is taken to fill half of the tank =  $1/2 * 8 = 4$  hours  
 Part filled by four pipes in one hour =  $(4 * 1/8) = 1/2$   
 Required Remaining Part =  $1/2$   
 Total time =  $4 + 1 = 5$

**Two pipes P and Q are opened together to fill a tank. Both the pipes fill the tank in time “x” If Q separately took 16 minutes more time than “x” to fill the tank and Q took 36 minutes more time than “x” to fill the tank, then find out the value of x?**

- A. 48 minutes  
B. 24 minutes  
C. 54 minutes  
D. 68 minutes  
E. None of the Above

#### Answer & Explanation

Answer – B. 24 minutes

**Explanation :**

Time is taken to fill the tank by both Pipes  $x = \sqrt{a*b}$   
 $x = \sqrt{16*36} = 4 * 6 = 24$

**A Cistern has an inlet pipe and outlet pipe. The inlet pipe fills the cistern completely in 1 hour 20 minutes when the outlet pipe is plugged. The outlet pipe empties the tank completely in 6 hours when the inlet pipe is plugged. If there is a leakage also which is capable of draining out the water from the tank at half of the rate of the outlet pipe, then what is the time taken to fill the empty tank when both the pipes are opened?**

- A. 3 hours  
B. 2 hours  
C. 5 hours  
D. 4 hours  
E. None of the Above

#### Answer & Explanation

Answer – B. 2 hours

**Explanation :**

Inlet pipe Efficiency =  $100/(8/6) = 75\%$   
 Outlet pipe Efficiency =  $100/(6) = 16.66\%$

Efficiency of leakage = half of the rate of the outlet pipe =  $8.33\%$   
 Net Efficiency =  $75 - (16.66 + 8.33) = 50\%$   
 Required time =  $100/50 = 2$  hours

**A Cistern has an inlet pipe and outlet pipe. The inlet pipe fills the cistern completely in 1 hour 20 minutes when the outlet pipe is plugged. The outlet pipe empties the tank completely in 4 hours when the inlet pipe is plugged. If both pipes are opened simultaneously at a time when the tank was one-third filled, when will the tank fill thereafter?**

- A. 3 hours  
B. 2 hours  
C. 5 hours  
D. 4 hours  
E. None of the Above

#### Answer & Explanation

Answer – B. 2 hours

**Explanation :**

Inlet pipe Efficiency =  $100/(8/6) = 75\%$   
 Outlet pipe Efficiency =  $100/(4) = 25\%$   
 Net Efficiency =  $75 - 25 = 50\%$  ( $1/3$ )filled  
 $2/3$  filled =  $100\%$   
 Required time =  $100/50 = 2$  hours

**Two pipes P and Q can fill a cistern in 10 hours and 20 hours respectively. If they are opened simultaneously. Sometimes later, tap Q was closed, then it takes total 8 hours to fill up the whole tank. After how many hours Q was closed?**

- A. 4 hours  
B. 5 hours  
C. 2 hours  
D. 6 hours  
E. None of the Above

#### Answer & Explanation

Answer – A. 4 hours

**Explanation :**

Pipe P Efficiency =  $100/10 = 10\%$   
 Pipe Q Efficiency =  $100/20 = 5\%$   
 Net Efficiency =  $15\%$   
 $15x + 10(8-x) = 100$

$$x = 4$$



**Three pipes A, B, and C can fill the tank in 10 hours, 20 hours and 40 hours respectively. In**

**the beginning all of them are opened simultaneously. After 2 hours, tap C is closed and A and B are kept running. After the 4th hour, tap B is also closed. The remaining work is done by tap A alone. What is the percentage of the work done by tap A alone?**

- A. 30 %
- B. 35 %
- C. 45 %
- D. 50 %
- E. None of the Above

#### Answer & Explanation

Answer – B. 35 %

#### Explanation :

Pipe A's work in % =  $100/10 = 10\%$

Pipe B's work in % =  $100/20 = 5\%$

Pipe C's work in % =  $100/40 = 2.5\%$

All of them are opened for 2 hours + after 2 hours, tap C is closed + After the 4th hour, tap B is also closed = 100

$$\Rightarrow (10+5+2.5)*2 + (10+5)*2 + X = 100$$

$$\Rightarrow 35 + 30 + \text{work by tap A alone} = 100$$

$$\Rightarrow \text{work by tap A alone} = 100 - 65 = 35\%$$

**A pipe can fill a tank in 12 minutes and another pipe can fill it in 15 minutes, but a third pipe can empty it in 6 minutes. The first two pipes are kept open for 5 min in the beginning and then third pipe is also opened. Time taken to empty the water tank is?**

- A. 30 mins
- B. 25 mins
- C. 45 mins
- D. 50 mins
- E. None of the Above

#### Answer & Explanation

Answer – C. 45 mins

#### Explanation :

$$x/6 - (x+5)/12 - (x+5)/15 = 0$$

$$x = 45 \text{ mins}$$

**Two pipes A and B can fill a tank in 12 hours and 18 hours respectively. The pipes are opened simultaneously and it is found that due to leakage in the bottom of the tank it took 48 minutes excess time to fill the cistern. When the cistern is full, in what time will the leak empty it?**

- A. 72 hours
- B. 62 hours
- C. 64 hours

D. 84 hours

E. None of the Above

#### Answer & Explanation

Answer – A. 72 hours

#### Explanation :

Work done by the two pipes in 1 hour =  $(1/12)+(1/18) = (15/108)$ .

Time taken by these pipes to fill the tank =  $(108/15)$  hrs = 7 hours 12 min.

Due to leakage, time taken = 7 hours 12 min + 48 min = 8 hours

Work done by two pipes and leak in 1 hour =  $1/8$ .

Work done by the leak in 1 hour =  $(15/108) - (1/8) = (1/72)$ .

Leak will empty the full cistern in 72 hours.

**A tank is normally filled in 6 hours but takes two hours longer to fill because of a leak in the bottom of the tank. If the tank is full the leak will empty it in how many hours?**

- A. 16 hours
- B. 18 hours
- C. 17 hours
- D. 24 hours
- E. None of the Above

#### Answer & Explanation

Answer – D. 24 hours

#### Explanation :

Work done by leak in 1 hr =  $(1/6 - 1/8) = 1/24$

Leak will empty the tank in 24 hours

**Twelve pipes are connected to a Cistern. Some of them are inlet pipes and the others are outlet pipes. Each of the inlet pipes can fill the tank in 8 hours and each of the outlet pipes can empty the cistern completely in 6 hours. If all the pipes are kept open, the empty tank gets filled in 24 hours. How many inlet pipes are there?**

- A. 6
- B. 8
- C. 7
- D. 4
- E. None of the Above

#### Answer & Explanation

Answer – C. 7

#### Explanation :

$$(x/8) - [(12-x)/6] = 1/24$$

$$x = 7$$

A dam has four inlets – A, B, C and D. The dam can be filled in 12 minutes through the first three inlets and it can be filled in 15 minutes through the second, the third and fourth inlet also it can be filled through the first and the fourth inlet in 20 minutes. How much time required to fill up the dam by all the four inlets?

- A. 10 mins
- B. 15 mins
- C. 20 mins
- D. 25 mins
- E. None of the Above

#### Answer & Explanation

Answer – A. 10 mins

#### Explanation :

$$(1/A + 1/B + 1/C) = 1/12 \dots (i)$$

$$(1/B + 1/C + 1/D) = 1/15 \dots (ii)$$

$$(1/A + 1/D) = 1/20 \dots (iii)$$

From eqn (i) and (ii)

$$(1/A - 1/D) = 1/60 \dots (iv)$$

From eqn (iii) and (iv)

$$A=30 \quad D=60.$$

Let the time taken to full the tank = T

$$T(1/A + 1/B + 1/C + 1/D) = 1$$

$$T(1/30 + 1/15) = 1$$

$$T = 10 \text{ mins}$$

Three pipes P, Q and R connected to a Cistern. The first pipe (i.e) P can fill  $1/2$  part of the tank in one hour, second pipe, Q can fill  $1/3$  part of the cistern in one hour. R is connected to the cistern. Then how much time required to empty the cistern completely?

- A. 2 hours
- B. 3 hours
- C. 4 hours
- D. 5 hours
- E. None of the Above

#### Answer & Explanation

Answer – C. 4 hours

#### Explanation :

In 1 hour, P can fill =  $1/2$  Part

Time taken to fill the Cistern by Pipe P = 2 hours

In 1 hour, Q can fill =  $1/3$  Part

Time taken to fill the Cistern by Pipe P = 3 hours

$$[1/2 + 1/3 - 1/R] = 7/12$$

$$1/R = 1/4$$

Time required to empty the Cistern = 4 hours

A Cistern can be filled by an inlet pipe at the rate of 4 litres per minute. A leak in the bottom of a cistern can empty the full tank in 8 hours. When the cistern is full, the inlet is opened and due to the leak, the cistern is empty in 40 hours. How many litres does the cistern hold?

- A. 4000 litre
- B. 2400 litre
- C. 1920 litre
- D. 2020 litre
- E. None of the Above

#### Answer & Explanation

Answer – B. 2400 litre

#### Explanation :

Part emptied by the leak in 1 hour =  $1/8$

part filled by (leak & inlet open) in 1 hour =  $1/40$

Part filled by the inlet pipe in 1 hour =  $1/8 - 1/40 = 1/10$

Inlet pipe fills the tank in = 10 hours

Inlet pipe fills water at the rate of 4 litres a minute.

$$\text{Capacity of Cistern} = 10 * 60 * 4 = 2400 \text{ litre}$$

In a tank there is a pipe which can be used for filling the tank as well as for emptying it. The capacity of the tank is  $1200 \text{ m}^3$ . The emptying of the tank is  $10 \text{ m}^3$  per minute higher than its filling capacity and the pump needs 6 minutes lesser to empty the tank than it needs to fill it. What is the filling capacity of the pipe?

- A.  $20 \text{ m}^3 / \text{min.}$
- B.  $40 \text{ m}^3 / \text{min.}$
- C.  $50 \text{ m}^3 / \text{min.}$
- D.  $60 \text{ m}^3 / \text{min.}$
- E. None of the Above

#### Answer & Explanation

Answer – B.  $40 \text{ m}^3 / \text{min.}$

#### Explanation :

$$1200/x - 1200/(x+10) = 6$$

$$200/x - 200/(x+10) = 6$$

$$x^2 + 10x - 2000 = 0$$

$$x = 40$$

Two pipes P and Q can fill a cistern in 12 hours and 4 hours respectively. If they are

**opened on alternate hours and if pipe A is opened first, in how many hours will the tank be full?**

- A. 4 hours
- B. 5 hours
- C. 2 hours
- D. 6 hours
- E. None of the Above

#### Answer & Explanation

Answer – D. 6 hours

**Explanation :**

Pipe P can fill =  $1/12$

Pipe Q can fill =  $1/4$

For every two hour,  $1/12 + 1/4 = 1/3$  Part filled

Total = 6 hours



**Two pipes A and B can fill a tank in 10 hours and 15 hours respectively while a third pipe C can empty the full tank in 20 hours. All the pipes are opened for 5 hours and then C is closed. Find the time in which the tank is full?**

- a) 5.5 hrs
- b) 6.5 hrs
- c) 7.5 hrs
- d) 8.5 hrs
- e) None of these

#### Answer & Explanation

Answer – c) 7.5 hrs

**Explanation :**

$$(1/10 + 1/15 - 1/20)*5 + (1/10 + 1/15)*T = 1.$$

We will get  $T = 2.5$  hrs

so total time =  $5 + 2.5 = 7.5$  hrs

**Three pipes P, Q and R can fill a tank in 12 minutes, 18 minutes and 24 minutes respectively. The pipe R is closed 12 minutes before the tank is filled. In what time the tank is full?**

- a)  $8.(5/13)$  hrs
- b)  $8.(4/13)$  hrs
- c)  $7.(4/13)$  hrs
- d)  $8.(6/13)$  hrs
- e) None of these

#### Answer & Explanation

Answer – b)  $8.(4/13)$  hrs

**Explanation :**

Let T is the time taken by the pipes to fill the tank

$$(1/12 + 1/18 + 1/24)*(T - 12) + (1/12 +$$

$$1/18)*12 = 1$$

We will get  $T = 108/13 = 8.(4/13)$  hrs

**On pipe P is 4 times faster than pipe Q and takes 45 minutes less than pipe Q. In what time the cistern is full if both the pipes are opened together?**

- a) 8 minutes
- b) 10 minutes
- c) 12 minutes
- d) 14 minutes
- e) None of these

#### Answer & Explanation

Answer – c) 12 minutes

**Explanation :**

Let P takes x minutes to fill the tank alone, then Q will take  $4x$  minutes to fill the tank

$$4x - x = 45, x = 15$$

So P will take 15 minutes and Q will take 60 minutes to fill the tank. Both will fill the tank in  $(60*15)/(75) = 12$  minutes

**Two pipes can fill a tank in 15 and 20 hours respectively. The pipes are opened simultaneously and it is found that due to the leakage in the bottom,  $17/7$  hours extra are taken extra to fill the tank. If the tank is full, in what approximate time would the leak empty it?**

- a) 27 hrs
- b) 32 hrs
- c) 36 hrs
- d) 39 hrs
- e) None of these

#### Answer & Explanation

Answer – d) 39 hrs

**Explanation :**

Total time taken by both pipes before the leak was developed =  $60/7$  hours

now, leaks is developed which will take T time to empty the tank so,  $(1/15 + 1/20 - 1/T) = 1/11$  solve for T, we will get  $660/17$  hours = 39 hours (approx.)

**Two pipes A and B can fill a tank in 8 minutes and 12 minutes respectively. If both the pipes are opened simultaneously, after what time should B be closed so that the tank is full in 6 minutes?**

- a) 1 min
- b) 2 min

- c) 3 min
- d) 4 min
- e) None of these

**Answer & Explanation**

Answer – c) 3 min

**Explanation :**

Let after x minutes pipe B is closed

$$(1/8 + 1/12)x + (1/8)(6 - x) = 1$$

$$X = 3 \text{ minutes}$$

**In what time would a cistern be filled by three pipes whose diameters are 1cm, 2 cm and 3 cm running together, when the largest pipe alone can fill the tank in 21 minutes? The amount of water flowing through the pipe is directly proportional to the square of its diameter.**

- a) 10.5 minutes
- b) 11.5 minutes
- c) 12.5 minutes
- d) 13.5 minutes
- e) None of these

**Answer & Explanation**

Answer – d) 13.5 minutes

**Explanation :**

More the diameter more will be the water flowing through it and less will be the time taken.

Means bigger pipe will take less time to fill the tank

So, for 1 cm time,  $(1^2)/(3^2) = 21/t$ , we get  $t = 189$

For 2 cm time,  $(2^2)/(3^2) = 21/t$ . We get  $t = 189/4$

So total time =  $1/21 + 1/189 + 4/189 = 2/27$

So total time = 13.5 minutes

**Two pipes P and Q can fill a tank in 10 min and 12 min respectively and a waste pipe can carry off 12 litres of water per minute. If all the pipes are opened when the tank is full and it takes one hour to empty the tank. Find the capacity of the tank.**

- a) 30
- b) 45
- c) 60
- d) 75
- e) None of these

**Answer & Explanation**

Answer – c) 60

**Explanation :**

Let the waste pipe take 'T' time to empty the tank.

$$(1/10 + 1/12 - 1/T)*60 = -1$$

We will get  $T = 5 \text{ min}$

So capacity =  $5*12 = 60 \text{ ltr}$

**One pipe fill 1/4 of the tank in 4 minutes and another pipe fills 1/5 of the tank in 4 minutes. Find the time taken by both pipe together to fill half the tank?**

- a)  $40/9$  minutes
- b)  $50/9$  minutes
- c)  $44/9$  minutes
- d)  $53/9$  minutes
- e) None of these

**Answer & Explanation**

**Two pipes can separately fill the tank in 15hrs and 30hrs respectively. Both the pipe are opened and when the tank is  $1/3$  full a leak is developed due to which  $1/3$  water supplied by the pipe leaks out. What is the total time to fill the tank?**

- a)  $20/3$  hr
- b)  $35/3$  hr
- c)  $40/3$  hr
- d)  $50/3$  hr
- e) None of these

**Answer & Explanation**Answer – c)  $40/3$  hr**Explanation :**

$$(1/15 + 1/30)*T_1 = 1/3, T_1 = 10/3 \text{ hr}$$

Now after leak is developed,  $[(1/15 + 1/30) - (1/3)*(1/15 + 1/30)]*T_2 = 2/3$

$T_2 = 10 \text{ hr}$ . So total time =  $10 + 10/3 = 40/3 \text{ hr}$

**Three pipes A, B and C is attached to a cistern. A can fill it in 20 minutes and B can fill it in 30 minutes. C is a waste pipe. After opening both the pipes A and B, Riya leaves the cistern to fill and returns when the cistern is supposed to be filled. But she found that waste pipe C had been left open, she closes it and now the cistern takes 5 minutes more to fill. In how much time the pipe C can empty the full cistern?**

- a) 26.8 minutes

- b) 25.8 minutes
- c) 27.8 minutes
- d) 28.8 minutes
- e) None of these

**Answer & Explanation**

Answer – d) 28.8 minutes

**Explanation :**

The tank supposed to be filled in  $(30*20)/50 = 12$  minutes  
 $\text{so, } (1/20 + 1/30)*12 - 12/C + (1/20 + 1/30)*5 = 1$  (A and B work for 12 minutes and also C work for 12 minutes and then A and B takes 5 more minutes to fill the tank)  
 solve for C, we will get  $C = 144/5 = 28.8$



**A pipe can empty a tank in 60 minutes alone. Another pipe whose diameter is twice the diameter of first pipe is also opened. Now find the time in which both pipe will empty the tank together.**

- a) 8 min
- b) 10 min
- c) 12 min
- d) 14 min
- e) None of these

**Answer & Explanation**

Answer – c) 12 min

**Explanation :**

Time taken by pipe to empty the tank is inversely proportional to cross-sectional area.  
 So, time taken by second pipe will be  $= 60/4 = 15$  min ( $\pi r^2 = 1/60$  and for second pipe  $4\pi r^2 = 1/T$  so we get  $T = 15$  min)

Time taken by both to empty the pipe  $= (60*15)/75 = 12$

**Two pipes P and Q can fill a tank in 10 min and 12 min respectively and a waste pipe can carry off 12 litres of water per minute. If all the pipes are opened when the tank is full and it takes one hour to empty the tank. Find the capacity of the tank.**

- a) 30
- b) 45
- c) 60
- d) 75
- e) None of these

**Answer & Explanation**

Answer – c) 60

**Explanation :**

Let the waste pipe take ‘T’ time to empty the tank.

$$(1/10 + 1/12 - 1/T)*60 = -1$$

We will get  $T = 5$  min

So capacity  $= 5*12 = 60$ ltr

**Two pipes P and Q can fill a tank in 36 and 24 minutes respectively. If both the pipes are opened simultaneously, after how much time pipe Q should be closed so that tank is full in 30 minutes.**

- a) 2min
- b) 4min
- c) 6min
- d) 8min
- e) None of these

**Answer & Explanation**

Answer – b) 4min

**Explanation :**

Let after T time, Q is closed,  $(1/36 + 1/24)*T + (1/36)*(30 - T) = 1$

**Two pipes A and B can fill a tank in 20 and 30 minutes respectively. Both the pipes are opened together but after 5 minutes pipe B is closed. What is the total time required to fill the tank**

- a)  $16\frac{1}{3}$  min
- b)  $16\frac{2}{3}$  min
- c)  $17\frac{2}{3}$  min
- d)  $18\frac{2}{3}$  min
- e) None of these

**Answer & Explanation**Answer – b)  $16\frac{2}{3}$  min**Explanation :**

$(1/20 + 1/30)*5 + (1/20)*T = 1$   
 total time  $= T + 5$  min

**Three pipes P, Q and R can fill a tank in 12, 15 and 20 minutes respectively. If pipe P is opened all the time and pipe Q and R are opened for one hour alternatively. The tank will be full in**

- a) 5hr
- b) 6hr
- c) 7hr
- d) 8hr
- e) None of these

**Answer & Explanation**

Answer – c) 7hr

**Explanation :**

$(1/12 + 1/15) + (1/12 + 1/20) = 17/60$  (in 2 hrs this much tank is filled)  
 so in 6 hrs  $51/60$  is filled. Remaining,  $9/60 = (1/12 + 1/15)*t$ , so  $T = 1\text{hr}$   
 so total =  $6 + 1 = 7\text{ hr}$

- A cistern can be filled by a pipe in 6 hours. A leak is developed at the bottom due to which it takes 2 hours more to fill the cistern. Find the time taken by the leak to empty the cistern when the cistern is full.
- 20hr
  - 22hr
  - 24hr
  - 26hr
  - None of these

#### Answer & Explanation

Answer – c) 24hr

#### Explanation :

$$1/6 - 1/T = 1/8, \text{ solve for } T$$

- A pipe can fill a tank in 20 minutes and another pipe can fill the tank in 40 minutes. There is a waste pipe which can empty the tank in 15 minutes. First two pipes are opened for 5 minutes and then the third pipe is also opened. In what time the cistern is emptied after the third pipe also opened
- 60
  - 75
  - 80
  - 90
  - None

#### Answer & Explanation

Answer – b) 75

#### Explanation :

$$(1/20 + 1/40)*5 + (1/20 + 1/40 - 1/15)*T = 1$$

- Two pipes can separately fill the tank in 15hrs and 30hrs respectively. Both the pipe are opened and when the tank is  $1/3$  full a leak is developed due to which  $1/3$  water supplied by the pipe leaks out. What is the total time to fill the tank?
- $20/3$  hr
  - $35/3$  hr
  - $40/3$  hr
  - $50/3$  hr
  - None of these

#### Answer & Explanation

Answer – c)  $40/3$  hr

#### Explanation :

$$(1/15 + 1/30)*T_1 = 1/3, T_1 = 10/3 \text{ hr}$$

now after leak is developed,  $[(1/15 + 1/30) - (1/3)*(1/15 + 1/30)]*T_2 = 2/3$   
 $T_2 = 10 \text{ hr}$ . So total time =  $10 + 10/3 = 40/3 \text{ hr}$

- Pipe P is 4 times as fast as Q in filling a tank. If P takes 20 minutes to fill a tank, then what is the time taken by both the pipe P and Q to fill the tank?
- 12
  - 16
  - 18
  - 20
  - None of these

#### Answer & Explanation

Answer – b) 16

#### Explanation :

P takes 20 minutes and it is 4 times faster than Q, it means Q will take 80 minutes to fill the tank.

$$(1/20 + 1/80)*t = 1. \text{ We get } t = 16$$

- In what time a cistern is filled by three pipes of diameter 2cm, 4cm and 6cm respectively. If the time taken by largest pipe to fill the tank is 40 minutes. Amount of water flowing through the pipe is proportional to the diameter of the pipe
- $25.5/7$  min
  - $25.3/7$  min
  - $23.5/7$  min
  - $23.4/7$  min
  - None of these

#### Answer & Explanation

Answer – a)  $25.5/7$  min

#### Explanation :

Larger the cross-section area less will be time taken by pipe to fill the tank.

$$36/16 = T/40, T = 90\text{min} \text{ (for 4 cm pipe)}$$

similarly for 2 cm pipe time taken will be = 360min

$$\text{Total time} = (1/360 + 1/90 + 1/40) = 1/p, \text{ so we get } P = 25.5/7 \text{ minutes}$$

- Two pipes P and Q can fill a tank in 20hrs and 25hrs respectively while a third pipe R can empty the tank in 30hrs. If all the pipes are opened together for 10hrs and then pipe

**R is closed then in what time the tank can be filled.**

- a) 400/23hrs
- b) 400/27hrs
- c) 200/23hrs
- d) 200/27hrs
- e) None of these

#### Answer & Explanation

Answer – b) 400/27hrs

**Explanation :**

$$(1/20 + 1/25 - 1/30)*10 + (1/20 + 1/25)*x = 1$$

We get  $x = 130/27$ , so total time to fill the tank =  $130/27 + 10 = 400/27$  hrs

**□ There are three taps A, B and C which can fill a tank in 12hrs, 15hrs and 30 hrs respectively. If the tap A is opened first, after one hour tap B was opened and after 2 hours from the start of A, tap C is also opened. Find the time in which the tank is full.**

- a) 6(2/11)hr
- b) 6(3/11)hr
- c) 5(3/11)hr
- d) 5(2/11)hr
- e) None of these

#### Answer & Explanation

Answer – a) 6(2/11)hr

**Explanation :**

In first hour only A is opened, in the next hour A and B are opened and in the third hour A, B and C are opened.

So, in three hours  $(3/12 + 2/15 + 1/30) = 25/60$  tank is already filled.

Now,  $25/60 = (1/12 + 1/15 + 1/30)*t$

$T = 25/11$ . Total time =  $3 + 25/11 = 58/11$  hours

**□ Three pipes P, Q and R can fill the tank in 5, 10 and 15 minutes respectively. If all the pipes are opened together and pipe Q is turned off 5 minutes before the tank is full. Then find the time in which the tank will full.**

- a) 45/11hrs
- b) 53/11hrs
- c) 51/13hrs
- d) 47/11hrs
- e) None of these

#### Answer & Explanation

Answer – a) 45/11hrs

**Explanation :**

Let total time taken by the pipes is T hrs, then

$$(1/5 + 1/10 + 1/15)*(T - 5) + (1/5 + 1/15)*5 = 1$$

**□ A pipe can fill a tank in 20 minutes but due to a leak develop at the bottom of the tank,  $1/5$  of the water filled by the pipe leaks out. Find the time in which the tank is filled.**

- a) 20 min
- b) 25 min
- c) 30 min
- d) can't be determined
- e) None of these

#### Answer & Explanation

Answer – b) 25 min

**Explanation :**

Amount of tank filled by the pipe in one minute =  $1/20$  and due to leakage  $1/5$  of  $1/20$  leaks out so,  $[1/20 - (1/5)*(1/20)]*T = 1$

We get  $T = 25$

**□ A bathing tub can be filled by a cold pipe in 15 minutes and by a hot pipe in 10 minutes. Ramesh opened both the tap and leaves the bathroom and returns at the time when the tub should be full. He observed that a waste pipe is opened at the bottom, he now closes it. Now the tub will take more 5 minutes to fill the tank, find the time in which the leak can empty the tank.**

- a) 36/5 min
- b) 33/5 min
- c) 37/5 min
- d) can't be determined
- e) None of these

#### Answer & Explanation

Answer – a) 36/5 min

**Explanation :**

$$(1/15 + 1/10 - 1/x)*6 + (1/15 + 1/10)*5 = 1$$

$$x = 36/5$$

**□ There are 10 taps connected to a tank. Some of them are waste pipe and some of them are water pipe. Water pipe can fill the tank in 15 hours and waste pipe can empty the tank in 30 hours. Find the number of waste pipes if the tank is filled in 6 hours.**

- a) 3
- b) 4
- c) 5
- d) 7
- e) None of these

#### Answer & Explanation

Answer – c) 5

**Explanation :**

Let water pipes are x and waste pipe are Y.

$$x + y = 10$$

$$(x/15 - y/30)*6 = 1$$

Solve both equation to get x and y

**Pipe A is 4 times as fast as B in filling a tank. If A takes 20 minutes to fill a tank, then what is the time taken by both the pipe A and B to fill the tank?**

- a) 12
- b) 16
- c) 18
- d) 20
- e) None of these

#### Answer & Explanation

Answer – b) 16

**Explanation :**

A takes 20 minutes and it is 4 times faster than B, it means B will take 80 minutes to fill the tank.

$$(1/20 + 1/80)*t = 1. \text{ We get } t = 16$$

**Pipe A is 4 times faster than pipe B and takes 45 minutes less to fill a tank. When both the pipes are opened together than the time in which the tank will be full.**

- a) 10 min
- b) 12 min
- c) 15 min
- d) 18 min
- e) None of these

#### Answer & Explanation

Answer – b) 12 min

**Explanation :**

Let A take X minute to fill a tank then B will take 4x time.

$$4x - x = 45 \text{ (given), } X = 15.$$

$$\text{Time taken to fill the tank together} = (1/15 + 1/60)*t = 1$$

$$T = 12 \text{ minute}$$

**Two pipes P and Q can fill a tank in 20 minutes and 30 minutes respectively. There is a waste pipe which withdraws water at the rate of 8 litres per minute. Now the tank is full and If all the pipes are opened simultaneously the tank is emptied in 60 minutes. Find the capacity of the tank.**

- a) 60ltr
- b) 70ltr
- c) 80ltr

d) 90ltr

e) None of these

#### Answer & Explanation

Answer – c) 80ltr

**Explanation :**

$$(1/20 + 1/30 - 1/t)*60 = -1$$

'-1' is taken because the work is negative. T is the time taken by the waste pipe to empty the tank alone. We will t = 10

$$\text{So capacity} = 10*8 = 80\text{ltr}$$

**There are 4 filling pipes and 3 emptying pipes capable of filling and emptying in 12 minutes and 15 minutes respectively. If all the pipes are opened together and as a result they fill 10 litres of water per minute. Find the capacity of the tank.**

- a) 65ltr
- b) 70ltr
- c) 75ltr
- d) 80ltr
- e) None of these

#### Answer & Explanation

Answer – c) 75ltr

**Explanation :**

$$(4/12 - 3/15)*t = 1$$

$t = 15/2$  minute – in this time the tank will be filled. So the capacity =  $(15/2)*10 = 75$  litre

**Two taps can separately fill the tank in 10m and 15min respectively. They fill the tank in 12 minutes when a third pipe which empties the tank is also opened. What is the time taken by the third pipe to empty the whole tank?**

- A) 14 minutes
- B) 15 minutes
- C) 12 minutes
- D) 20 minutes
- E) 16 minutes

#### Answer & Explanation

C) 12 minutes

**Explanation:**

$$1/10 + 1/15 - 1/x = 1/12$$

$$\text{Solve, } x = 12$$

**Two pipes A and B can fill a tank in 12 hours and 15 hours respectively. If they are opened on alternate hours with pipe A opened first, then in how many hours the**

**tank will be full?**

- A) 13 hrs
- B) 14 1/2 hrs
- C) 12 hrs
- D) 12 1/2 hrs
- E) 10 2/3 hrs

**Answer & Explanation**

**D) 12 1/2 hrs**

**Explanation:**

$A = 12$  hours,  $B = 15$  hours

Total work = LCM(12,15) = 60

So efficiency of A =  $60/12 = 5$ , efficiency of B =  $60/15 = 4$

2 hrs work of (A+B) =  $5+4 = 9$

$2*6(12)$  hours work of (A+B) =  $9*6 = 54$

So remaining work =  $60-54 = 6$

Now A's turn at 13th hour, he will do remaining work(6) in  $6/12$  hr

So total  $12 \frac{1}{2}$  hrs

**Pipes P and Q can fill the tank in 24 minutes and 32 minutes respectively. Both pipes are opened together. To have the tank full in 18 minutes, after how many minutes the pipe P must be closed?**

- A) 22 minutes
- B) 21 minutes
- C) 15 minutes
- D) 12.5 minutes
- E) 10.5 minutes

**Answer & Explanation**

**E) 10.5 minutes**

**Explanation:**

P is to be closed before 18 minutes, let it is closed after x minutes, then Q worked for all 18 minutes. So,

$(1/24)*x + (1/32)*18 = 1$

Solve,  $x = 10.5$

**Three pipes, A, B and C are opened to fill a tank such that A and B can fill the tank alone in 36 min. and 45 min. respectively and C can empty it in 30 min. After 6 minutes the emptying pipe is closed. In how many minutes the tank will be full in this way?**

- A) 20
- B) 25
- C) 18
- D) 24
- E) 30

**Answer & Explanation**

**D) 24**

**Explanation:**

Let the tank full in x minutes, then A and B opened for x minutes and C for 6 minutes.

$$(1/36 + 1/45)*x - (1/30)*6 = 1$$

$$(1/20)*x = 6/5$$

Solve,  $x = 24$

**A and B are pipes such that A can empty the tank in 60 minutes and B can fill in 30 minutes. The tank is full of water and pipe A is opened. If after 18 minutes, pipe B is also opened, then in how much total time the tank will be full again?**

- A) 32 minutes
- B) 29 minutes
- C) 36 minutes
- D) 23 minutes
- E) 18 minutes

**Answer & Explanation**

**B) 36 minutes**

**Explanation:**

Emptying pipe A is opened first for 18 minutes, so in 18 minutes the part of tank it has emptied is  $(1/60)*18 = 9/30$

Now filling pipe is also opened, now since only  $9/30$  of the tank is empty so  $9/30$  is only to be filled by both pipes, let it take now x minutes, so  $(1/30 - 1/60)*x = 9/30$

Solve,  $x = 18$

So total =  $18+18 = 36$  minutes [total time is asked – 18 minutes when emptying pipe was only opened, 18 minutes when both were operating.]

**Two pipes A and B can alone fill a tank in 20 minutes and 30 minutes respectively. But due to a leak at the bottom of tank, it took 3 more minutes to fill the tank. In how many hours, the leak can alone empty the full tank?**

- A) 60
- B) 30
- C) 48
- D) 56
- E) 72

**Answer & Explanation**

**A) 60**

**Explanation:**

A and B can fill tank in  $(1/20 + 1/30) = 1/12$  so 12 minutes

But it took 3 more minutes, this means the tank got full in  $12+3 = 15$  minutes  
 $\text{So } (1/20 + 1/30 - 1/x) = 1/15$   
 Solve,  $x = 60$

**Pipes A and B can fill a cistern in 15 hours together. But if these pipes operate separately A takes 40 hours less than B to fill the tank. In how many hours the pipe A will fill the cistern working alone?**

- A) 60
- B) 20
- C) 40
- D) 15
- E) 25

#### Answer & Explanation

B) 20

#### Explanation:

Let A takes x hours, then B =  $(x+40)$  hours  
 $1/x + 1/(x+40) = 1/15$   
 Solve,  $x = 20$

**Three pipes A, B and C can fill the cistern in 10, 12, and 15 hours respectively. In how much time the cistern will be full if A is operated for the whole time and B and C are operated alternately which B being first?**

- A) 10 hours 32 minutes
- B) 6 hours
- C) 5 1/2 hours
- D) 5 7/10 hours
- E) 9 2/11 hours

#### Answer & Explanation

D) 5 7/10 hours

#### Explanation:

In first hour, part of cistern filled is  $(1/10 + 1/12) = 11/60$   
 In second hour, part of cistern filled is  $(1/10 + 1/15) = 1/6$   
 So in 2 hours, part of cistern filled is  $11/60 + 10/60 = 21/60 = 7/20$   
 now in  $2*2$  (4) hours, part of cistern filled is  $(7/20)*2 = 14/20 = 7/10$   
 now in the 5th hour, A+B's turn which fill  $11/60$  in that hour, but the cistern remaining to be filled is  $(1 - 7/10) = 3/10$ , since  $3/10$  is more than  $11/60$ , so after 5th hour remaining part to be filled is  $3/10 - 11/60 = 7/60$   
 now in 6th hour, (A+C)'s turn, it will fill remaining  $7/60$  in  $(7/60)*(6/1) = 7/10$   
 so total  $5 \frac{7}{10}$  hours

**A cistern is  $1/4$ th full. Two pipes which fill the cistern in 15 minutes and 20 minutes respectively are opened simultaneously. After 5 minutes, a third pipe which empties the full cistern in 30 minutes is also opened. In how many minutes the cistern will be full?**

- A)  $6\frac{1}{2}$
- B) 2
- C) 5
- D) 7
- E) 8

#### Answer & Explanation

D) 7

#### Explanation:

Since  $1/4$ th is already filled,  $3/4$ th is to be filled now.

So

$$(1/15 + 1/20)*(5+x) - (1/30)*x = 3/4$$

$$(7/60)*5 + (7/60 - 1/30)*x = 3/4$$

$$(5/60)*x = 2/12$$

Solve,  $x = 2$  mins

So total 7 minutes

**Pipes A, B and C which fill the tank together in 6 hours are opened for 2 hours after which pipe C was closed. Find the number of hours taken by pipe C to fill the tank if the remaining tank is filled in 7 hours.**

- A) 16
- B) 14
- C) 20
- D) 22

Cannot be determined

#### Answer & Explanation

B) 14

#### Explanation:

$$1/A + 1/B + 1/C = 1/6$$

Now given that first all open for 2 hours, then C closed and A+B completes in 7 hours, so

$$(1/A + 1/B + 1/C) * 2 + (1/A + 1/B) * 7 = 1$$

$$Put 1/A + 1/B = 1/6 - 1/C$$

$$(1/6 - 1/C) * 2 + (1/6 - 1/C) * 7 = 1$$

$$2/6 + 7/6 - 7/C = 1$$

Solve,  $C = 14$



**Three pipes A, B and C can fill a cistern in 6 hours. After working at it together for 2 hours, C is closed and A and B can fill the remaining part in 6 hours. The number of hours taken by C alone to fill the cistern is**

- A.12hrs  
B.10hrs  
C.18hrs  
D.8hrs  
E.None of these

**Answer & Explanation**

Answer – C.18hrs

**Explanation :**

$$\begin{aligned} A+B+C \text{ in } 1h &= 1/6 \\ A+B+C \text{ in } 2h &= 2/6 = 1/3 \\ \text{Remaining} &= 1-1/3 = 2/3 \\ A+B \text{ in } 6\text{hrs} &= 2/3 \\ A+B \text{ in } 1\text{hr} &= 2/18 \\ C \text{ alone to fill the cistern} &= 1/6 - 2/18 = 3-2/18 = 1/18 \end{aligned}$$

**Pipes A and B can fill a tank in 5 and 3 hrs respectively. Pipe C can empty it in 15 h. The tank is half full. All the three pipes are in operation simultaneously. After how much time the tank will be full ?**

- A.1(7/15)hrs  
B.2(1/11)hrs  
C.1(1/14)hrs  
D.2(3/11)hrs  
E.None of these

**Answer & Explanation**

Answer – C.1(1/14)hrs

**Explanation :**

$$\begin{aligned} \text{In } 1 \text{ hr} &= 1/5 + 1/3 - 1/15 = 3+5-1/15 = 7/15 \\ \frac{1}{2} \text{ tank filled by 3 pipes} &= 15/7 * 1/2 = 15/14 \\ &= 1(1/14) \end{aligned}$$

**Two pipes A and B can fill a tank in 10 and 20 minutes respectively. Both the pipes are opened together but after 4 minutes, Pipe A is turned off. What is the total time required to fill the tank ?**

- A.12m  
B.10m  
C.8m  
D.16m  
E.None of these

**Answer & Explanation**

Answer – A.12m

**Explanation :**  
 $A + B \text{ in } 4 \text{ minute} = 4 ( 1 / 10 + 1 / 20 ) = 4(2+1)/20 = 12/20 = 3/5$   
 $\text{Part remaining} = 1 - ( 3 / 5 ) = 2 / 5$   
 $1 / 20 \text{ part is filled by B in } 1 \text{ minute}$   
 $2 / 5 \text{ part will be filled in} = ( 20 ) * ( 2 / 5 ) =$

8 minutes  
Total = 8+4 = 12m

**Two pipes A and B can fill a tank in 6 hours and 5 hours respectively. If they are turned on alternatively for 1 hour each, find the time in which the tank is full. (Assume pipe A is opened first)**

- A.4hrs 30min  
B.5hrs  
C.6hrs 25min  
D.5hrs 30min  
E.None of these

**Answer & Explanation**

Answer – D. 5hrs 30min

**Explanation :**

$$\begin{aligned} \text{Total} &= 30, A = 30/6 = 1/5, B = 30/5 = 1/6 \\ \text{In } 2 \text{ hrs} &= 5+6 = 11 \\ \text{In } 4 \text{ hrs} &= 22 \\ \text{Remaining} &= 30-22 = 8 \\ 1 \text{ hr Pipe A} &= 8-5 = 3, \text{ Remaining B} = 3 * 1/6 = 30 \text{ min} \\ \text{Total} &= 5 \text{ hrs } 30 \text{ min} \end{aligned}$$

**Pipes A, B and C can fill a tank in 3, 4 and 6 hours respectively. If all the pipes are opened together and after 30 minutes pipes B and C are turned off, find the total time in which the tank is full.**

- A.2(3/8)hrs  
B.1(1/7)hrs  
C.2(2/7)hrs  
D.3(1/3)hrs  
E.None of these

**Answer & Explanation**

Answer – A.2(3/8)hrs

**Explanation :**

$$\begin{aligned} \text{In } 1 \text{ hr } A, B, C &= 1/3 + 1/4 + 1/6 = 8+6+4/24 = 18/24 = 6/8 = 3/4 \\ \text{Filled in } 30 \text{ m} &= 3/8 \\ \text{Remaining} &= 1-3/8 = 5/8 \\ \text{Pipe A} &= 3 * 5/8 = 15/8 \\ \text{Total} &= 15/8 + 1/2 = 15+4/8 = 19/8 = 2(3/8) \text{ hrs} \end{aligned}$$

**Two pipes M and N can fill a tank in 30 and 45 minutes respectively. If both the pipes were open for few minutes after N was closed and the tank was full in 25 minutes, find the time for pipe N was open.**

- A.8.16m  
B.7.5min

- C.5min  
D.10.2m  
E.None of these

**Answer & Explanation**

Answer – B.7.5min

**Explanation :**

$$\begin{aligned} X(1/30+1/45) + 1/30(25-x) &= 1 \\ x/45 + 25/30 &= 1 \\ x/45 = 5/30 &= 1/6 \\ x = 45/6 & \\ x = 7.5 \text{m} & \end{aligned}$$

- A cistern is filled by 3 pipes A, B and C with uniform flow. The second pipe B takes  $\frac{3}{2}$  times the time taken by A to fill the tank, while C takes twice the time taken by B to fill the tank. If all the three pipes can fill the tank in 7 hours, find the time required by pipe A alone to fill the tank.

- A.10hrs  
B.12hrs  
C.14hrs  
D.15hrs  
E.None of these

**Answer & Explanation**

Answer – C.14hrs

**Explanation :**

$$\begin{aligned} 1/x + 1/(3/2x) + \frac{1}{2}(3x/2) &= 1/7 \\ 6/3x &= 1/7 \\ 3x/6 &= 7 \\ 3x &= 42 \\ x &= 14 \end{aligned}$$

- Two pipes P and Q can fill a tank in 8m and 12m respectively. If only pipe P is open then it would take 4 hours longer to fill the tank. Find how much longer would it take if only pipe Q is open.

- A.16hrs  
B.12hrs  
C.10hrs  
D.8hrs  
E.None of these

**Answer & Explanation**

Answer – A.16hrs

**Explanation :**

$$\begin{aligned} P &= 8+4 = 12 \\ P+Q &= 1/8 \\ Q &= 1/8 - 1/12 = 3-2/24 = 1/24 \\ Q &= 24 \\ Q \text{ alone} &= 24-8 = 16 \end{aligned}$$

- Two pipes P and Q can fill a tank in 20m and 30m respectively. If both the pipes are opened simultaneously, after how much time should Q be closed so that the tank is full in 16minutes ?

- A.12min  
B.6min  
C.10min  
D.7min  
E.None of these

**Answer & Explanation**

Answer – B.6min

**Explanation :**

$$\begin{aligned} X(1/20+1/30) + (16-x)1/20 &= 1 \\ 5x/60 + 16-x/20 &= 1 \\ 5x+48-3x/60 &= 1 \\ 2x+48 &= 60 \\ 2x &= 12 \\ X &= 12/2 = 6 \end{aligned}$$

- A tap can fill a tank in 12 minutes and another tap can empty the tank in 6 minutes. If the tank is already full and then both the taps are opened the tank will be

- A.Filled in 6 minutes  
B.Emptied in 6 minutes  
C.Filled in 6 minutes  
D.Emptied in 12 minutes  
E.None of these

**Answer & Explanation**

Answer – D.Emptied in 12 minutes

**Explanation :**

$$1/12 - 1/6 = 1-2/12 = -1/12$$

- Two taps can separately fill the tank in 18m and 12min respectively and when the waste pipe is open, they can together fill the tank in 9minutes. The waste pipe can empty the tank in

- A.20min  
B.25min  
C.36min  
D.30min  
E.None of these

**Answer & Explanation**

Answer – C.36min

**Explanation :**

$$\begin{aligned} 1/18 + 1/12 &= 3+2/36 = 5/36 \\ 5/36 - 1/9 &= 5-4/36 = 1/36 \Rightarrow 36\text{min} \end{aligned}$$

Two pipes can fill the tank in 4hrs 5hrs respectively while the third pipe can empty the tank in 20hrs, if all the pipes are opened together, then the tank will be filled in

- A.2.30hrs
- B.2.50hrs
- C.3.20hrs
- D.3.30hrs
- E.None of these

#### Answer & Explanation

Answer – A.2.30hrs

**Explanation :**

$$\begin{aligned} \frac{1}{4} + \frac{1}{5} - \frac{1}{20} &= \frac{5+4-1}{20} = \frac{8}{20} \\ 20/8 &\Rightarrow 2(1/2) \text{ hrs} \end{aligned}$$

10 buckets of water fill a taken when the capacity of each bucked is 14 liter. How many buckets will be needed to fill the same tank, if the capacity of each bucket is 7litres ?

- A.10
- B.12
- C.18
- D.20
- E.None of these

#### Answer & Explanation

Answer – D.20

**Explanation :**

$$\begin{aligned} 10 \times 14 &= x \times 7 \\ X &= 10 \times 14 / 7 = 20 \end{aligned}$$

A leak in the bottom of a tank can empty the full tank in 7 hours. An inlet pipe fills water :  
the tank

the leak the tank is empty in 8 hours. The capacity of the tank in litres is

- A.3450litres
- B.5460litres
- C.7620litres
- D.6720 litres
- E.None of these

#### Answer & Explanation

Answer – D.6720 litres

**Explanation :**

$$\text{In } 1 \text{ hr} = \frac{1}{7} - \frac{1}{8} = \frac{8-7}{56} = \frac{1}{56}$$

$$\text{In } 1 \text{ min} = \frac{1}{(56 \times 60)} = \frac{1}{3360}$$

Inlet pipe fill water at the rate of 2 liters a minute  $= 2 \times 3360 = 6720$  litres

Two pipes P and Q can fill a tank in 6 hours and 8 hours respectively. If they

are opened on alternate hours and if pipe P is opened first, in how many hours, the tank shall be full ?

- A.10 hrs
- B.9.30hrs
- C.6.45hrs
- D.10.30hrs
- E.None of these

#### Answer & Explanation

Answer – C. 6.45hrs

**Explanation :**

$$\begin{aligned} \frac{1}{6} + \frac{1}{8} &= \frac{8+6}{48} = \frac{14}{48} = \frac{7}{24} \dots \text{in 2 hrs} \\ &= 21/24 \dots \text{6hrs} \\ P &\Rightarrow 6 * \frac{3}{24} \Rightarrow 3/4 = 45 \text{ min} \\ \text{Total} &= 6 \text{ hrs } 45 \text{ min} \end{aligned}$$

Two pipes can fill a tank in 10 hours and 12 hours respectively while a third pipe empties the full tank in 20 hours. If all the three pipes operate simultaneously, in how much time will the tank be filled?

- A.7hrs
- B.8hrs
- C.7hrs 30 min
- D.9hrs 30min
- E.None of these

#### Answer & Explanation

Answer – C.7hrs 30 min

**Explanation :**

$$\begin{aligned} \text{Net apart filled in 1 hour} &= \left(\frac{1}{10} + \frac{1}{12} - \frac{1}{20}\right) \\ &= 8/60 = 2/15. \end{aligned}$$

Tank will be full in  $= 15/2$  hours  $\Rightarrow 7 \text{ hrs } 30 \text{ min.}$

One pipe can fill a tank 4 times as fast as another pipe. If together the two pipes can fill the tank in 15 minutes, then the slower pipe alone will be able to fill the tank in:

- A.75minutes
- B.60minutes
- C.55minutes
- D.45minutes
- E.None of these

#### Answer & Explanation

Answer – A.75minutes

**Explanation :**

$$\begin{aligned} \frac{1}{x} + \frac{4}{x} &= \frac{1}{15} \\ \frac{5}{x} &= \frac{1}{15} \\ x &= 15 \times 5 \\ x &= 75 \text{ minutes} \end{aligned}$$

Bucket A has thrice the capacity as bucket B. It takes 20 turns for bucket P to fill the empty drum. How many turns it will take for both the buckets A and B having each turn together to fill the empty drum

- A.12
- B.10
- C.15
- D.16
- E.None of these

**Answer & Explanation**

Answer – C.15

**Explanation :**

$$\begin{aligned}A &= 3B \\A &= 60, B = 20\end{aligned}$$

$$\text{No of turns} = xy/x+y$$

$$\text{No of turns} = 60*20/20+60 = 1200/80 = 15 \text{ turns}$$

Two pipes A and B would fill a cistern in 20m and 30min respectively, both pipes are kept open for 10min and the first pipe be turned off after that the cistern may be filled in

A.6min

B.5min

C.8min

D.10min

E.None of these

**Answer & Explanation**

Answer – B.5min

**Explanation :**

$$10(1/20+1/30) = 10[3+2/60] = 50/60 = 5/6$$

$$\text{Remaining part} = 1-5/6 = 6-5/6 = 1/6$$

$$\text{Second pipe} = 30*1/6 = 5\text{min}$$

Tap A can fill the empty tank in 12hrs but due to leak in the bottom it is filled in 15hrs.If the tank is full ,then tap is closed.In how many hours the leak can empty the tank ?

A.60hrs

B.50hrs

C.45hrs

D.30hrs

E.None of these

**Answer & Explanation**

Answer – A.60hrs

**Explanation :**

$$1/12 - 1/15 = 5-4/60 = 1/60$$

# 120+ SPEED TIME & DISTANCE QUESTIONS WITH SOLUTION

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1. Hemant covers a certain distance with his own speed , but when he reduces his speed by 10 km/hr his time duration for the journey increases by 40 hrs, while if he increases his speed by 5km/hr from his original speed he takes 10hrs less than the original time taken . Find the distance covered by him.
- A) 1200km  
B) 1500km  
C) 1350km  
D) 1400km  
E) None

**View Answer****Option B****Solution:**

Let distance be  $x$  km and speed be  $y$  km/hr  
 $x/(y-10)-x/y=40 \Rightarrow x=4y(y-10)$  ——(1)  
 $x/y-x/(y+5)=10 \Rightarrow x=2y(y+5)$  ——(2)

Equate 1 and 2

$$4y(y-10)=2y(y+5)$$

$$2y-20=y+5 \Rightarrow y=25 \text{ km/hr}$$

$$\text{Then } x=2*25(25+5)=50*30=1500 \text{ km}$$

2. A train met with an accident 60km away from station A. It completed the remaining journey at  $5/6$ th of the original speed and reached station B 1hr 12mins late. Had the accident taken place 60km further, it would have been only 1hr late. what was the original speed of the train?
- A) 50km/hr  
B) 45km/hr  
C) 60km/hr  
D) 55km/hr  
E) None

**View Answer****Option C****Solution:**Let the original speed be  $6x$ .Travelling 60km at  $5/6$ th of original speed cost 12 mins etc.

$$60/5x = 60/6x + 12/60$$

$$\Rightarrow x=10$$

Original speed  $6x=60 \text{ km/hr}$ .

3. Two man start together to walk a certain distance, one at 4 km/hr and another at 5 km/hr. The former arrives half an hour before the latter. Find the distance.
- A) 10km  
B) 15km  
C) 20km  
D) 8km  
E) None

**View Answer****Option A****Solution:**

If the distance be  $x$  km, then  
 $x/4-x/5=1/2$   
 $(5x-4x)/20=1/2$   
 $x/20=1/2 \Rightarrow x=10 \text{ km}$

4. In a flight of 600 km, an aircraft was slowed down due to bad weather. Its average speed for the trip was reduced by 200 km/hr and the time of flight increased by 30 minutes. The duration of the flight is:
- A) 2hrs  
B) 1hr 30min  
C) 2hrs 15min  
D) 1hr  
E) None

**View Answer****Option D****Solution:**Let the duration of the flight be  $x$  hrs.

$$\text{Then, } 600/x-600/(x+1/2)=200$$

$$600/x-1200/2x+1=200$$

$$X(2x+1)=3$$

$$2x^2+x-3=0$$

$$X=1 \text{ hr.}$$

5. Two racers start running towards each other, one from A to B and another from B to A. They cross each other after one hour

and the first racer reaches B,  $\frac{5}{6}$  hour before the second racer reaches A. If the distance between A and B is 50 km. what is the speed of the slower racer?

- A) 15km/hr
- B) 20km/hr
- C) 25km/hr
- D) 30km/hr
- E) None

**View Answer**

**Option B**

**Solution:**

Let second racer takes  $x$  hr with speed  $s_2$   
First racer takes  $x - \frac{5}{6}$  hr with speed  $s_1$

Total distance = 50km

$$S_1 = 50/(x - \frac{5}{6})$$

$$S_2 = 50/x$$

As they cross each other in 1hr...

$$\text{Total speed} = s_1 + s_2$$

$$\text{Now, } T = D / S$$

$$50/(s_1+s_2) = 1$$

$$x = 5/2, 1/3$$

$$\text{Put } x = 5/2 \text{ in } s_2 \rightarrow 20\text{km/hr}$$

6. P and Q run at the speed 40m/s and 20m/s resp on the circular track of 800m, as its circumference , when would the P and Q meet for the first time at the starting point if they start simultaneously from the same point.
- A) 40sec
  - B) 50sec
  - C) 55sec
  - D) 60sec
  - E) None

**View Answer**

**Option A**

**Solution:**

Time taken by P to complete one round  
 $800/40=20$

Time taken by Q to complete one round  
 $800/20=40$

LCM of 20 40=40

Every 40sec they would be together at the starting point.

7. The speeds of Ram and Raj are 30 km/h and 40 km/h. Initially Raj is at a place L and Ram is at a place M. The distance between L and M is 650 km. Ram started his journey 3 hours earlier than Raj to meet each other. If they meet each other at a place P somewhere between L and M, then the distance between P and M is?
- A) 225km
  - B) 300km
  - C) 250km
  - D) 330km
  - E) None

**View Answer**

**Option D**

**Solution:**

If the 1st 3hr Ram covers 90km

$$\text{So the rest } 650-90=560\text{km}$$

Now they both travel together towards each other

$$\text{So, the time is } 560/70=8\text{hr}$$

Then ram travel total  $3+8=11\text{hrs}$

Thus the distance travelled by Ram  
 $11*30=330\text{km}$

8. The ratio between the speed of a car and a bike is 16 : 15 respectively. Also, a bus covered a distance of 480 km in 8 hrs. The speed of the bus is three-fourth the speed of the car. How much distance will the bike cover in 6 h?
- A) 320km
  - B) 360km
  - C) 450km
  - D) 435km
  - E) None

**View Answer**

**Option C**

**Solution:**

$$\text{Speed of bus} = 480/8 = 60\text{km/ h}$$

$$\text{Speed of car} = (60*4)/3 = 80\text{ km / h}$$

$$\text{Speed of car : Speed of bike} = 16 : 15$$

$$\text{Speed of bike} = 80/16 * 15 = 75\text{ km/ h}$$

$$\text{Distance covered by bike in 6 hr} = 75 \times 6 = 450\text{ km}$$

9. How many seconds will a train 50 m in length, travelling at the rate of 42 km an hour, take to pass another train 80 m long, proceeding in the same direction at the rate of 30 km an hour?
- A) 45sec  
B) 39sec  
C) 50sec  
D) 55sec  
E) None

**View Answer****Option B****Solution:**

$$\text{Relative speed} = 42 - 30 = 12 \text{ km/hr}$$

$$\text{Time} = (50+80) * 18 / 12 * 5$$

$$= 130 * 18 / 12 * 5 \Rightarrow 13 * 3$$

$$= 39 \text{ sec.}$$

10. A man rides his bike 20 km at an average speed of 8 km/hr and again travels 45 km at an average speed of 10 km/hr. What is his average speed for the ride approximately?
- A) 10.8km/hr  
B) 8.5km/hr  
C) 9.3km/hr  
D) 10.2km/hr  
E) None

**View Answer****Option C****Solution:**

$$\text{Average speed} = \text{total distance} / \text{total time}$$

$$\text{Total time} = 20/8 + 45/10$$

$$\text{Avg speed} = (20+45) / (20/8 + 45/10)$$

$$= 65 / ((200+360)/80)$$

$$= 65 * 80 / 560 = 65/7$$

$$= 9.3 \text{ km/hr}$$

1. Two buses start at same time from Chennai and Bangalore, which are 250km apart. If the two buses travel towards each other, they meet after 1hr and if they travel in same direction they meet after 5hrs. What is the speed of the bus starts from Chennai

if it is known that the one which started from Chennai has more speed than the other one?

A) 150km/hr  
B) 100km/hr  
C) 45km/hr  
D) 80km/hr  
E) 120km/hr

**View Answer****Option A****Solution:**

$$S = D/T$$

Here we have two speeds. We get 2 equations as.

$$250/1\text{hr} = C+B \quad \text{---1 (Travelling in opposite direction, speed must be added ie } C+B)$$

$$250/5\text{hr} = C-B \quad \text{---2 (Travelling in same direction, speed to be subtracted. ie } C-B)$$

solving 2 eqn  $C=150\text{km/hr}$ .

2. Car A leaves the city at 5pm and is driven at a speed of 30km/hr. 3hrs later another car B leaves the city in the same direction as car A. In how much time will car B be 12kms ahead of car A if the speed of car B is 50km/hr?
- A) 5hrs  
B) 4.2hrs  
C) 8hrs  
D) 5.1hrs  
E) 12hrs

**View Answer****Option D****Solution:**

$$\text{Car A travels } 3\text{hrs. } 3*30=90\text{km}$$

$$\text{Difference between speeds } 50-30=20\text{km/hr}$$

$$\text{Distance ahead } 12\text{km. } 90+12=102\text{km}$$

$$T=D/S \Rightarrow 102/20=5.1\text{hrs.}$$

3. Two trains start at the same time from Delhi and Agra and proceed towards each other at the rate of 40km/hr and 37 1/2km/hr. When they meet it is found that one train has traveled 200km more than the other train. What is the distance between Delhi and Agra?

- A) 6200km
- B) 5000km
- C) 4200km
- D) 4800km
- E) 6000km

[View Answer](#)

#### Option A

##### Solution:

Speed ratio  $40:37 \frac{1}{2} \Rightarrow 40:75/2 \Rightarrow 80:75$   
 ie 16:15  
 ratio diff between speed is  $1[16-15]$   
 $1 \Rightarrow 200$  (more distance)  
 $[16+15]31 \Rightarrow ?$   
 $31*200=6200\text{km}$ .

4. If a car runs at 45km/hr, it reaches its destination late by 10 min but if runs at 60km/hr it is late by 4min. What is the correct time for the journey?
  - A) 24min
  - B) 14min
  - C) 32min
  - D) 20min
  - E) 46min

[View Answer](#)

#### Option B

##### Solution:

Distance = diff in time \*  $(S_1 * S_2) / (S_1 - S_2)$   
 $D = [10-4]/60\text{hr} * (45*60)/[60-45] = 6/60 * 45*60/15 \Rightarrow 18\text{km}$   
 time  $T = D/S$  (take any one of the speed)  
 $18/45 = 2/5\text{hrs} = 2/5*60=24\text{min}$   
 then correct time is  $24-10=14\text{mins}$ .

5. A bike rider starts at 40km/hr and he increases his speed in every 1 hour by 2km/hr. Then the maximum distance covered by him in 24 hrs is:
  - A) 682km
  - B) 540km
  - C) 620km
  - D) 612km
  - E) 500km

[View Answer](#)

#### Option D

##### Solution:

Speed of the rider: 40km/hr  
 He increases his speed in every 1 hr by 2km/hr.

Distance covered by every 1 hr will be 40, 42, 44,...upto 12 terms. i.e. (for 24hrs)  
 $\text{Sum of } n \text{ terms} = n/2 (2a + (n-1)d)$   
 $12/2 * (2*40 + 11*2) \Rightarrow 12/2 * (80 + 22) \Rightarrow 612\text{km}$

6. Two friends Ram and Ravi are travelling from point A to B, which are 600km apart. Travelling at a certain speed Ram takes 1hr more than Ravi to reach point B. If Ram doubles his speed he will take 1hr 30mins less than Ravi to reach point B. At what speed was Ram driving from point A to B?
  - A) 150km/hr
  - B) 120km/hr
  - C) 80km/hr
  - D) 45km/hr
  - E) 92km/hr

[View Answer](#)

#### Option B

##### Solution:

$T = D/S$ . Let  $x$  be the speed  
 $600/x = T+1, 600/2x = T - 3/2$   
 Equate T  
 $(600-x)/x = (600+3x)/2x$   
 $1200-12x = 600+3x \Rightarrow x=120\text{km}$ .

7. A man takes 4hrs 30min in walking to a certain place and riding back. He would have gained 2hrs by riding both ways. The time he would take to walk both ways, is:
  - A) 5hrs10min
  - B) 4hrs30min
  - C) 7hrs
  - D) 5hrs40min
  - E) 4hrs

[View Answer](#)

#### Option C

##### Solution:

$W+R = 4\text{hrs } 30\text{min ie } 9/2\text{hrs}$

$$R+R=2\text{hrs} \Rightarrow R=1\text{hr}$$

then  $2W=9/2-1=7/2$ ,  $W=7/2*2=7\text{hrs}$

8. Two trains of equal lengths take 10 seconds and 15 seconds respectively to cross a telegraph post. If the length of each train be 300 metres, in what time will they cross each other travelling in opposite direction?
- A) 25 sec  
 B) 18 sec  
 C) 14 sec  
 D) 12 sec  
 E) 20 sec

**View Answer****Option D****Solution:**

Speed of the first train =  $[300/10]$  m/sec = 30 m/sec.

Speed of the second train =  $[300/15]$  m/sec = 20 m/sec.

speed =  $(30 + 20)$  m/sec = 50m/sec.

Required time =  $(300+300)/50$  sec = 12 sec.

9. The driver of a car sees a school van 60m ahead of him. After 30seconds the school van is 60m behind. If the speed of the car is 45kmph, what is the speed of the School Van?
- A) 31.8kmph  
 B) 20.2kmph  
 C) 18.6kmph  
 D) 26.4kmph  
 E) 30.6kmph

**View Answer****Option E****Solution:**

Relative speed =  $(60+60)/30 = 4\text{m/s} = 4 * 18/5 = 14.4\text{kmph}$

Speed of the school van =  $45 - 14.4 = 30.6\text{kmph}$

10. The distance between two cities A and B is 330km. A train starts from A at 8 AM. and travels towards B at 60 km/hr. Another train starts from B at 9 AM. and travels

towards A at 75 km/hr. At what time do they meet?

- A) 10 AM.  
 B) 10 : 20 AM.  
 C) 11 : 45 AM.  
 D) 11 : 15 AM.  
 E) 11 AM

**View Answer****Option E****Solution:**

Distance travelled by first train in one hour =  $60 \times 1 = 60$  km

Therefore, distance between two train at 9 AM.

$$= 330 - 60 = 270 \text{ km}$$

Now, Relative speed of two trains =  $60 + 75 = 135 \text{ km/hr}$

Time of meeting of two trains =  $270/135 = 2$  hrs.

Therefore, both the trains will meet at  $9 + 2 = 11 \text{ AM}$ .

1. A man in a train he can count 31 telephone posts in one minute. If they are known to be 45 m apart. Find the speed of the train.
- A) 90 km/hr  
 B) 70 km/hr  
 C) 100 km/hr  
 D) 81 km/hr  
 E) 95 km/hr

**View Answer****Option D****Solution:**

speed of the train =  $30 * 45 = (1350 * 60) / 1000 = 81 \text{ km/hr}$

2. If a man walks from his house to office at 6 km/hr , he is late by half an hour. However, if he walks at 8 km/hr , he is late by 10 minutes only. What is the distance of his office from his house.
- A) 8 km  
 B) 12 km  
 C) 14 km

- D) 18 km  
E) 10 km

**View Answer**

**Option A**

**Solution:**

$$(x/6) - (x/8) = (30-10)/60 \\ \Rightarrow x = 8 \text{ km}$$

3. A candle of 8 cm long burns at the rate of 7 cm in 7 hour and another candle of 10cm long burns at the rate of 6 cm in 3 hour. What is the time required by each candle to remain of equal lengths after burning for some hours, when they start to burn simultaneously with uniform rate of burning?  
 A) 5 cm  
 B) 3 cm  
 C) 1 cm  
 D) 2 cm  
 E) 4 cm

**View Answer**

**Option D**

**Solution:**

$$(8-x) = (10-2x) \\ \Rightarrow x = 2 \text{ cm}$$

4. Two trains, 190 m and 170 m long are going in the same direction. The faster train takes one minute to pass the other completely. If they are moving in opposite directions, they pass each other completely in 3 seconds. Find the speed of each train.  
 A) 55 m/sec. and 42 m/sec.  
 B) 63 m/sec. and 57 m/sec.  
 C) 60 m/sec. and 55 m/sec.  
 D) 42 m/sec. and 40 m/sec.  
 E) 44 m/sec. and 40 m/sec.

**View Answer**

**Option B**

**Solution:**

let the speed of the faster train be  $x$  and the speed of the slower train be  $y$ . Then, When they move in the same direction , the relative speed  $= (x - y)$   
 Total distance  $= 190 + 170 = 360 \text{ m}$

$$\text{Now, dist.} = \text{speed} * \text{time} = 360 = (x-y)*60 \\ \Rightarrow (x - y) = 6 \quad \dots(1)$$

When the trains move in opposite direction  $= (x+y)$

$$360 = (x + y)*3 \\ \Rightarrow 120 = (x + y) \quad \dots(2)$$

On solving (1) and (2), we get  
 $x = 63 \text{ m/sec. and } y = 57 \text{ m/sec.}$

5. A motorcyclist covered  $(2/3)$ rd of a total journey at his usual speed. He covered the remaining distance at  $(3/4)$ th of his usual speed. As a result, he arrived 30 minutes later than the time he would have taken at usual speed. If the total journey was 180 km. What was his usual speed?  
 A) 30 km/hr.  
 B) 20km/hr.  
 C) 50 km/hr.  
 D) 40 km/hr.  
 E) 60 km/hr.

**View Answer**

**Option D**

**Solution:**

Let the usual speed be  $x$  km/hr.  
 $(1/3)$ rd of the journey  $= 180/3 = 60 \text{ km}$   
 Therefore,  $60 / (3x/4) - 60/x = (1/2)$   
 $\Rightarrow x = 40 \text{ km/hr.}$

6. A boat running at the speed of 30 km/hr downstream covers a distance of 5 km in 10 minutes . The same boat while running upstream at the same speed covers the same distance in 12 minutes . What is the speed of the current?  
 A) 2.5 km/hr  
 B) 4 km/hr  
 C) 3.2 km/hr  
 D) 1.5 km/hr  
 E) 2.5 km/hr

**View Answer**

**Option A**

**Solution:**

$$x + y = (5 * 60)/10 = 30 \quad \dots(1) \\ \text{and } x - y = (5 * 60)/12 = 25 \quad \dots(2) \\ \text{From (1) and (2), we get} \\ x + y - x + y = 30 - 25 = 5 \\ \Rightarrow y = 2.5 \text{ km/hr.}$$

7. Two points P and Q are separated from a distance of 200 km. A car leaves from P to Q at the same time another car leaves from Q to P. The two car meet at the end of 8 hours. If the car travelling from P to Q travels 20km/hr. than the other. Find the speed of the faster car?
- A) 15.25  
B) 20.22  
C) 22.5  
D) 18.9  
E) 21.5

**View Answer****Option C****Solution:**

Let the speed of the car be  $x$  km/hr and  $(x+20)$  km/hr.  
 $8x + 8(x+20) = 200$   
 $x = 2.5$   
speed of the faster car = 22.5 km/hr.

8. A person takes 10 hours in walking to a place and riding back. He would have taken 5 hours less by riding both ways. What would be the time he would take to walk both ways?
- A) 5 hours  
B) 15 hours  
C) 12 hours  
D) 10 hours  
E) 8 hours

**View Answer****Option B****Solution:**

Time taken in walking one way and riding other way = 10 hours  
Time taken in riding both the ways = 5 hours  
Time taken in walking one way \* 2 = 20 hours – 5 hours = 15 hours

9. A man ride a bike at a speed of 6 km/hr from point X to point Y and came back from point Y to point X at the speed of 8 km/hr. What is the ratio between the time taken by man in riding from X to Y to point Y to X respectively?
- A) 3 : 5

- B) 4 : 3  
C) 1 : 5  
D) 2 : 3  
E) 2 : 7

**View Answer****Option B****Solution:**

Required ratio =  $8 : 6 = 4 : 3$

10. Ritesh drive a car at the speed of 60 km/hr from resort A to resort B. Returning over the same route , he got stuck in traffic and took an hour longer, also he could drive only at the speed of 40 km/hr . How many kilometers did he drive each way?
- A) 122 km  
B) 100 km  
C) 120 km  
D) 100 km  
E) 110 km

**View Answer****Option C****Solution:**

$$\begin{aligned} \frac{x}{40} - \frac{x}{60} &= 1 \\ \Rightarrow \frac{20x}{2400} &= 1 \\ \Rightarrow x &= 120 \text{ km} \end{aligned}$$

1. The speed of a boat in still water is 8kmph and the speed of current is 5kmph . The boat starts from point P and rows to point Q and comes back to point P. It takes 16 hours during this journey .Find the distance between the P and Q .
- A) 42km  
B) 28km  
C) 31km  
D) 39km  
E) 47km

**View Answer****Option D****Solution:**

Between point P and Q =  $x/(8-5) + x/(8+5)$

$$= 16 \\ \Rightarrow x = 39\text{km}$$

2. To reach from point A to point B at 4pm , Anuja will have to travel at an average speed of 18kmph . She will reach the point B at 3pm if she travels at an average speed of 24kmph . What will be the average speed of Anuja to reach point B at 2pm ?
- A) 55kmph  
B) 36kmph  
C) 45kmph  
D) 30kmph  
E) 28kmph

[View Answer](#)

### Option B

#### Solution:

From the ques. we get to know,

$$x/18 - x/24 = 1$$

$$\Rightarrow x = 72\text{km}$$

Time taken at 18kmph =  $72/18 = 4$  hours

Therefore ,

speed to cover 72km in 2 hours =  $72/2$

$$= 36 \text{ kmph}$$

3. Minal and Dhiraj begin together writing out a novel containing 8190 line. Minal starts with the first line , writing at the rate of 200lines per hour , and Dhiraj starts with the last line , then writes 8189<sup>th</sup> line and so on , proceeding backward at the rate of 150 lines per hour. At what line will they meet?
- A) 5000  
B) 4150  
C) 4680  
D) 5780  
E) 5600

[View Answer](#)

### Option C

#### Solution:

Duration of time of their meet =

$$8190/(200+150) = 23.4 \text{ hr.}$$

Their line of meet =  $200 * 23.4 = 4680$  line

4. A person starts by a car from Kollam to Trivandram and at the same time another person starts from Trivandram to Kollam by a car . After passing each other they complete their journey in 2 hours and (1/2)hour resp. At what rate does the second person drives the car if the first car runs at a speed of 40 kmph ?
- A) 80kmph  
B) 75kmph  
C) 90kmph  
D) 110kmph  
E) 60kmph

[View Answer](#)

### Option A

#### Solution:

$$\text{Ratio of speeds} = \sqrt{(1/2)} : \sqrt{2}$$

$$\Rightarrow S_1 : S_2 = 1 : 2$$

$$\text{If } 1 == 40$$

$$\text{then, } 2 == 80$$

Therefore ,  $S_2 = 80 \text{ kmph}$

5. Suppose the telegraph poles on a railway track are 30 m apart , how many poles will be passed by a train in 2 hours if the speed of the train is 90 km an hour ?
- A) 7540  
B) 8750  
C) 6000  
D) 5240  
E) 6250

[View Answer](#)

### Option C

#### Solution:

Train travels the dist. =  $90 * 2 = 180 \text{ km} = 180000\text{m}$

Therefore,

$$\text{the no. of poles} = 180000/30 = 6000 \text{ poles}$$

6. The speeds of Vijaya and Keshav are 30kmph and 40kmph . Initially, Keshav is at a point A and Vijaya is at a place B . The distance between A and B is 650 km . Vijaya started her journey 3 hours earlier

than Keshav to meet each other . If they meet each other at a place C somewhere in between A and B , then find the distance between C and B.

- A) 450km
- B) 785km
- C) 527km
- D) 470km
- E) 330km

[View Answer](#)

**Option E**

**Solution:**

In the first 3 hours Vijaya covers 90km, so rest dist. = 560km

Now, Vijaya and Keshav travels together , towards each other.

$$\text{Time} = \text{Dist.}/\text{Speed} = 560/70 = 8\text{hours}$$

Thus ,Vijaya travels total =  $3 + 8 = 11$  hours

Thus , the dist. traveled by Vijaya =  $11 * 30 = 330\text{km}$

7. A small aeroplane can travel at 400kmph in still air . The wind is blowing at a constant speed of 40kmph . The total time for a journey against the wind is 120min. What will be the time in minutes for the return journey with the wind?
- A) 98.18min.
  - B) 220min.
  - C) 114min.
  - D) 80min.
  - E) 194min.

[View Answer](#)

**Option A**

**Solution:**

$$400 - 40 = 360 \text{ kmph}$$

Let distance be x km

Take time in hours

$$\Rightarrow 120/60 = x/360$$

$$\Rightarrow x = 720 \text{ km}$$

Speed of aeroplane with the wind = 440 kmph

Therefore ,

Time taken by aeroplane with the wind =

$$(720/440) * 60 = 98.18 \text{ min.}$$

8. There are 50 poles with a constant distance between each pole . A car takes 20 sec. to reach the 10<sup>th</sup> pole . How much more time will it take to reach the last pole ?
- A) 120.11 sec.
  - B) 108.88 sec.
  - C) 88.8 sec.
  - D) 125.4 sec.
  - E) 157.17 sec.

[View Answer](#)

**Option C**

**Solution:**

To reach the 10<sup>th</sup> pole, the car need to travel 9 poles

9 poles 20 seconds

1 pole  $(20/9)$  seconds

To reach the last (20th) pole, the car needs to travel 19 poles.

$$49 \text{ pole } 49 \times (20/9) \text{ seconds} = 108.88 \text{ sec.}$$

Therefore, 88.8 sec more time required to reach the last pole.

9. A bike travels without stoppages at the rate of 60kmph and it travels with stoppages at the rate of 52kmph. How many minutes does the bike stop?
- A) 11 mins.
  - B) 10 mins.
  - C) 5 mins.
  - D) 8 mins.
  - E) 15 mins.

[View Answer](#)

**Option D**

**Solution:**

Due to stoppages, the bike can cover 8 km less per hour  $60 - 52 = 8$

Time taken to cover 8 km  $= (8/60) \times 60 = 8$  minutes

10. A cat is 50 of its own leaps behind a rat. The cat takes 5 leaps per minute to the rat's

4 leaps. If the cat and the rat cover 8m and 5m per leap resp., what distance will the cat have to run before it catches the rat?

- A) 800m
- B) 1100m
- C) 900m
- D) 600m
- E) 500m

#### **View Answer**

#### **Option A**

#### **Solution:**

Speed of cat = 40m/min.

Speed of rat = 20m/min.

Relative speed =  $40 - 20 = 20\text{m/min.}$

Diff. in dist. =  $50 * 8 = 400\text{m}$

Time in catching the rat =  $400/20 = 20\text{min.}$

Dist. traveled in 20min. =  $20 * 40 = 800\text{m}$

1. Two trains are running with speed 40kmph and 60kmph in the same direction. A man in the slower train passes by the faster train in 36seconds. Find the length of faster train?
  - A) 100mtr
  - B) 150mtr
  - C) 200mtr
  - D) 250mtr
  - E) 300mtr

#### **View Answer**

#### **Option C**

#### **Solution:**

In the same direction speed ...  $60 - 40$

= $20\text{kmph}$

$20 * 5/18 * 36 = 200\text{mtr}$

2. After travelling two hours a train met with an accident due to this it stops for an hour. After this the train moves at  $66(2/3)\%$  speed of its original speed and reaches to destination 3hour late. If the accident would occur at 200km ahead in the same line then the train reaches only 2.5hours late. Then find the distance of journey and the original speed of the train?
  - A) 2400km,600kmph

- B) 1800km,300kmph
- C) 2400km,400kmph
- D) 1800km,200kmph
- E) 2000km,100kmph

#### **View Answer**

#### **Option B**

#### **Solution:**

Due to 200km it saves 5hrs.

For 3hrs it has to run  $200 * 2 * 3 = 1200\text{km}$

$$66(2/3)\% = 2/3$$

.	after.....normal	
speed	2 : 3	
time	3 : 2	
	3-2 = 1.	

$1 = 2$  ( train stops for 1 hr out 3hrs. so  $3-1 = 2$ )

$2 = 4$

$1200/4 = 300\text{kmph}$

so  $2\text{hr} * 300 = 600\text{km}$

Now total distance =  $1200 + 600 = 1800\text{km}$

3. A man travels a distance in three equal parts. He covers first part at  $20\text{kmph}$ , second part at  $40\text{kmph}$  and third part at  $120\text{kmph}$ . Find the distance if he covers total distance in 20hrs.
  - A) 1400km
  - B) 1200km
  - C) 1440km
  - D) 1600km
  - E) 1500km

#### **View Answer**

#### **Option C**

#### **Solution:**

Distance = average speed \* time

Average speed will be.... $72\text{kmph}$

$$72 * 20 = 1440\text{km}$$

4. A person who can walk down a hill at the rate of  $6\text{kmph}$  and climb up the hill at rate of  $4\text{kmph}$ . He ascends and comes down to his starting point in 5hrs. how far did he ascends ?
  - A) 12km
  - B) 14km
  - C) 20km
  - D) 24km
  - E) 16km

**View Answer****Option A****Solution:**

$$\text{First find average speed} = 2*6*4/(6+4)$$

$$\text{Time} = 5\text{hrs}$$

$$\text{distance} = 48/10 * 5 = 24$$

$$\text{one side distance} = 24/2 = 12\text{km}$$

5. A student walks from his house at a speed of  $2(1/2)\text{km}$  per hour and reaches his school 6minutes late. The next day he increases his speed by  $1\text{kmph}$  and reaches 6minutes before school time. How far is the school from his home?
- A)  $5/4\text{km}$
  - B)  $9/4\text{km}$
  - C)  $7/4\text{km}$
  - D)  $11/4\text{km}$
  - E)  $10/4\text{km}$

**View Answer****Option C****Solution:**

$$S1*S2/\text{difference of speed} * ((\text{late} + \text{early})/60)$$

$$= (5/2 * 7/2)/1 * 12/60 = 7/4\text{km}$$

6. In covering a distance of  $60\text{km}$  Abhi takes 2hrs more than Sam. If Abhi triples his speed then he would take 2hrs less than Sam. Abhi speed in  $\text{kmph}$  is ?
- A)  $10\text{kmph}$
  - B)  $12\text{kmph}$
  - C)  $15\text{kmph}$
  - D)  $20\text{kmph}$
  - E)  $14\text{kmph}$

**View Answer****Option A****Solution:**

Abhi triples his speed

.	triple.....	normal
speed	3.....	1
time	1.....	3
.	3 - 1 = 2	

$$2=4\text{hrs}$$

$$3=6\text{hrs}$$

so Abhi cover  $60\text{km}$  in  $6\text{hrs}$

$$60/6 = 10\text{kmph}$$

7. Two men start together to walk a certain distance, one at  $5\text{kmph}$  and another at  $4\text{kmph}$ . The former arrives an hour before the latter. Find the distance?
- A)  $10\text{km}$
  - B)  $15\text{km}$
  - C)  $20\text{km}$
  - D)  $25\text{km}$
  - E)  $30\text{km}$

**View Answer****Option C****Solution:**

.	speed	5.....	4
.	time	4.....	5
.		$5 - 4 = 1$	

$$1=1$$

$$5=5\text{hrs}$$

$$\text{distance} = 4*5 = 20\text{km}$$

8. A man covers a distance in downstream at  $18\text{kmph}$ . If the speed of stream is  $2\text{kmph}$  then find his speed in upstream?
- A)  $12\text{kmph}$
  - B)  $14\text{kmph}$
  - C)  $16\text{kmph}$
  - D)  $18\text{kmph}$
  - E)  $20\text{kmph}$

**View Answer****Option B****Solution:**

.	$18 - 2 - 2 = 14\text{kmph}$
---	------------------------------

9. The distance between a thief and a policeman is  $300\text{m}$ . the speed of thief is  $12\text{m/s}$  and the speed of police is  $15\text{m/s}$ . find the distance covered by police to catch the thief?
- A)  $1000\text{m}$
  - B)  $1200\text{m}$
  - C)  $1500\text{m}$
  - D)  $2000\text{m}$
  - E)  $1300\text{m}$

**View Answer****Option C****Solution:**

$$\therefore \frac{300}{(15-12)} = 100 \text{ sec}$$

$$15 \times 100 = 1500 \text{ m}$$

10. Two trains of same length passes each other in 36sec. if the speed of trains are 40kmph and 20kmph respectively, then find the length of train?
- A) 200 m  
B) 400 m  
C) 600 m  
D) 300 m  
E) 500 m

**View Answer****Option D****Solution:**

$$2x/(40+20) * 18/5 = 36$$

$$2x = 600$$

$$x = 300 \text{ m}$$

1. A man covers a distance in 10hrs and in three equal parts. The speed is 10kmph, 20kmph and 60kmph respectively. Find the distance?
- A) 240km  
B) 300km  
C) 150km  
D) 180km

**View Answer****Option D****Solution:**

$$\text{Distance} = \text{speed} * \text{time}$$

Here we need average speed. So average speed will come 18kmph

$$\text{Distance} = 18 * 10 = 180 \text{ km}$$

2. Two persons covers same distance at 42kmph and 48kmph respectively. They find that the slower one takes 30minutes more to cover the distance. Find the distance cover by them?
- A) 150km  
B) 168km  
C) 200km  
D) 224km

**View Answer****Option B****Solution:**

Speed:

$$42 : 48$$

$$7 : 8$$

$$\text{Time } 8 : 7$$

$$\therefore (+1)$$

$$1=30$$

$$8=240 \text{ minutes} = 4 \text{ hrs}$$

$$\text{Distance} = \text{speed} * \text{time}$$

$$= 42 * 4$$

$$= 168 \text{ km}$$

3. Two persons goes from A to B at 12kmph and 8kmph. The faster one reach B first and come back. He meets slower one at a point R. find the distance between A & R if the distance between A to B is 20km?
- A) 12km  
B) 24km  
C) 16km  
D) 18km

**View Answer****Option C****Solution:**

it is clear that both person covers double distance .

$$\text{So } 2 * 20 / (12+8) = 2 \text{ hrs}$$

$$\text{Slower one covers } 8 * 2 = 16 \text{ km}$$

In that time in which father one covers  $12 * 2 = 24 \text{ km}$

So 16km is ans

4. Two trains are running on a parallel track in same direction. Train A comes from behind and overtake train B in 60seconds. One person in train A observes that he covers train B in 40seconds. If the speed of trains in the ratio of 3:1, then find the ratio of length of train A & B?
- A) 1:3  
B) 3:2  
C) 2:3  
D) 1:2

**View Answer****Option D****Solution:**

In this question speed doesn't matter

because we know .....length = speed\*time.  
Speed remains same in both cases so it will cancel out.

Now length of A+B =60units

Length of B = 40 units

Length of A = 60-40 =20units

A : B

20 : 40

1 : 2

5. If a person cover a distance in  $\frac{5}{7}$ th of his normal speed, then he will reach his destination 20minutes late. Find the usual time taken by him on his normal speed?
  - A) 100min
  - B) 50min
  - C) 140min
  - D) 70min

[View Answer](#)

### Option B

**Solution:**

Shortcut : multiply numerator by time/difference

Difference = 7-5 =2

Time = 20

$5*20/2 = 50\text{min}$

6. A man cover a distance in t hrs, if he met with an accident after 20km and he then run at his  $\frac{3}{5}$ th of his normal speed, so he reach his destination 40minutes late. If he met with an accident at 30km then he reach only 30min late. Find his original speed?
  - A) 60kmph
  - B) 50kmph
  - C) 40kmph
  - D) 24kmph

[View Answer](#)

### Option C

**Solution:**

After moving 10km more, man saves 10minutes. For saving of 40minutes he has to cover 40km.

Now speed: after accident                    before  
accident

.	3	5
Time	5	3
.	(+2)	

2=40minutes

1=20min

(Normal time) 3= 60min

So he covers 40km in 60min with normal speed = 40kmph

7. A thief steal a car at 1pm and run at a speed of 80kmph. The theft discovered at 2pm and police run behind him at a speed of 100kmph. Find at what time police will catch the thief?
  - A) 6pm
  - B) 7pm
  - C) 8pm
  - D) 5pm

[View Answer](#)

### Option A

**Solution:**

The thief cover 80km in 1hr.

Time –  $80/(100-80) = 4\text{hrs}$ .

So – 2pm+4 = 6pm

8. A boat travels upstream from Q to P and downstream from P to Q in 3hrs. if the distance between P to Q is 4km and the speed of the stream is 1kmph, then what is the speed of the boat in still water?
  - A) 4.5kmph
  - B) 5.2kmph
  - C) 2.5kmph
  - D) 3kmph

[View Answer](#)

### Option D

**Solution:**

Go with options

$4/(3+1) + 4/(3-1) = 3\text{hr}$

Only option D satisfy

9. A boat covers 12km upstream and 18km downstream in 3hrs. while it covers 36km up stream and 24km downstream in  $6(1/2)$  hrs. find velocity of the stream?
  - A) 1.5kmph
  - B) 1kmph
  - C) 2kmph
  - D) 2.5kmph

[View Answer](#)

**Option C****Solution:**

$$12/y + 18/x = 3 \dots\dots\dots(1)$$

$$36/y + 24/x = 13/2 \dots\dots\dots(2)$$

By solving above equation we will get

$$X=12\text{kmph}, y = 8\text{kmph}$$

$$\text{Speed of stream} = (12-8)/2 = 2\text{kmph}$$

10. Two person A & B with speed of 30kmph and 40kmph comes towards each other. When they meet it is find that faster one cover 30km more than slower one, find the distance cover by train?
- A) 210km  
B) 240km  
C) 280km  
D) 300km

[View Answer](#)

**Option A****Solution:**

Faster train cover 10km more in every hour. So for 30km the train has to run for 3hrs.

$$\text{Distance} = (30+40) * 3 \\ = 210\text{km}$$

1. There are two trains. The speed of trains are x and 2x respectively. Train A started at 8am and train B started at 9 AM and move towards each other. The distance between them is 600km. they met each other at 12 Noon. Find the value of x?
- A) 120kmph  
B) 60kmph  
C) 180kmph  
D) 90kmph  
E) 45kmph

[View Answer](#)

**Option B****Solution:**

$$(600 - x)/(x+2x) = 3$$

$$10x=600$$

$$X=60$$

2. A train start from point A and move towards B. it met with an accident after 45km and covered remaining distance at 2/3rd of its speed and it late by 40 minutes. If the accident happened 15km after then train would be 30 minutes late. Find the distance?
- A) 90  
B) 100  
C) 105  
D) 110  
E) 120

[View Answer](#)

**Option C****Solution:**

It saves 10min in 15 km

So far 40min it cover  $15*4 = 60\text{km}$

$$\text{So } 60 + 45 = 105$$

3. A man covers a distance in three equal parts. He covers first part at 5kmph, 2nd part at 10kmph and 3rd part at 30kmph. Find his average speed?
- A) 10kmph  
B) 9kmph  
C) 8kmph  
D) 15kmph  
E) 12kmph

[View Answer](#)

**Option A****Solution:**

Let X LCM of 5,10,30 = 30

Time taken in three parts

$$30/5 = 6\text{hr}(1)$$

$$30/10 = 3\text{hr}(2)$$

$$30/30 = 1\text{hr}(3)$$

$$\text{Average speed} = \text{total distance} / \text{total time} \\ = 30+30+30/6+3+1 = 10\text{kmph}$$

4. There are two trains move towards each other @ 50kmph and 60kmph respectively. When they meet it is noted that faster train covers 50km more than the other. Find the total distance travelled by them?
- A) 555km  
B) 500km



and 6 seconds. Find the length of train?

- A) 96m
- B) 80m
- C) 72m
- D) 54m
- E) 60m

[View Answer](#)

#### Option A

**Solution:**

Let speed of train = $X$

$$\text{Length} = (X+6) * 8 = (X+10) * 6$$

$$2X = 12$$

$$X = 6$$

Relative speed \* time = length

$$(6+6) * 8 = 96\text{m}$$

10. A train covers a platform in 30 sec and a pole in 10sec. if the length of train is 150m, then find the length of platform?
- A) 400m
  - B) 450m
  - C) 500m
  - D) 300m
  - E) 550m

[View Answer](#)

#### Option D

**Solution:**

Length of train : Length of platform

$$(x+150)/30 = 150/10$$

$$x=300$$

1. Two buses starts from A and B towards each other respectively. They meet at a point X. the speed of buses are 50km/hr and 60km/hr. when they met they found that faster train covers 40km more than the slower. Find the distance between A and B.
- A) 400km
  - B) 420km
  - C) 440km
  - D) 480km

[View Answer](#)

#### Option C

**Solution:**

The bus which is faster covers 10km more in an hour. So for 40km it has to take 4hrs. Now the time both the train travelled in 4hrs.....

Distance = speed \* time

$$(50+60)=110$$

$$110*4= 440$$

2. A bus covers a total distance in 12hours. It covers first half at 10km/hr and 2nd half at 14km/hr. find the distance covered by bus?
- A) 140km
  - B) 120km
  - C) 160km
  - D) 145km

[View Answer](#)

#### Option A

**Solution:**

This is concept of average speed.

So

$$\text{Distance} = \text{average speed} * \text{time}$$

$$= 2*10*14/(10+14) * 12 = 140\text{km.}$$

3. A thief steal a car at 1:30pm and drive at a speed of 60km/hr. Police came to know about theft at 2:30pm and start chasing him with the speed of 70km/hr. after how much kilometer police will catch the thief ?
- A) 360km
  - B) 420km
  - C) 440km
  - D) 480km

[View Answer](#)

#### Option B

**Solution:**

Police came to know about theft after 1hour. So distance between thief and police 60km, now police start chasing him with a relative speed of 10km/h (70-60)

Time taken by police =  $60/10 = 6\text{hrs}$

Distance run by police =  $70*6= 420\text{km}$

4. A train passes a pole in 30seconds and a platform in 1 minute 10seconds. If the length of platform is 160km. then find the length of train ?  
 A) 100m  
 B) 80m  
 C) 160m  
 D) 120m

**View Answer****Option D****Solution:**

Ratio of length of train : length of platform  
 $30 : 40$

$$40=160$$

$$30=120\text{km}$$

5. If a bus run without stoppages then the speed of bus is 54km/h and with stoppage the speed reduces to 36km/hr. find the stoppage time in an hour of bus?  
 A) 20minutes  
 B) 15miniutes  
 C) 10minutes  
 D) 25minutes

**View Answer****Option A****Solution:**

Sol: stoppage time = original speed – stoppage speed \*60

Original speed

$$=(54-36)/54 * 60$$

$$= 20 \text{ minutes}$$

6. A person has to reach a place in a certain time and he find that he will be 15minutes late, if he walks at 4km/h and 10 minutes earlier if he walks at 6km/h. find the distance he has to cover?  
 A) 3km  
 B) 4km  
 C) 5km  
 D) 6km

**View Answer****Option C****Solution:**

$$s1 * s2/(s2 - s1) * (t1+t2)/60$$

$$= 4*6/2 * 25/60$$

$$= 5\text{km}$$

7. A man can reach a certain place in 30hours. If he reduces his speed by  $1/15$ th, he covers 10km less in that time. Find his speed ?  
 A) 4km/h  
 B) 5km/h  
 C) 6km/h  
 D) 7km/h

**View Answer****Option B****Solution:**

$$\text{Speed} = A : B$$

$$\therefore 15 : 14$$

$$\text{Time} = 14 \text{ } 15 (15-1)$$

but we have to keep time same in B also, so distance covered in both cases =

$$A = 15*14 = 210$$

$$B = 14*14 = 196$$

$$210-196 = 14$$

$$14 = 10 (\text{ 10 km less in question})$$

$$210 = 150\text{km}$$

$$\text{Speed} = 150/30 = 5\text{km/h}$$

8. Ravi and Ajay start simultaneously from the same place. A far B 50km apart. Ravi's speed is 5km/h less than that of Ajay. Ajay after reaching B, returns and meet Ravi at a place 10km apart from B. find Ravi's speed?  
 A) 10km/h  
 B) 15km/h  
 C) 12km/h  
 D) 20km/h.

**View Answer****Option A****Solution:**

In the whole journey Ajay covers 20km more than Ravi .

Then time taken by Ajay =  $20/5 = 4\text{hrs}$

(Because in every hour Ajay covers 5km more than Ravi for 20 km.)

So

$$\text{Speed of Ajay} = 60/4 = 15$$

$$\text{Ravi's speed} = 15 - 5 = 10 \text{ km/hr}$$

9. Walking at  $\frac{4}{5}$ th of his usual speed, a man is 10 minutes late. The usual time taken by him to cover that distance is ?
- A) 36minutes  
B) 50minutes  
C) 45minutes  
D) 40minutes

**View Answer**

**Option D**

**Solution:**

In this case  $\rightarrow$  numerator \* time/(Numerator – denominator)  
 $= 4 * 10 / 1 = 40$  minutes

10. A man cover a certain distance in t hours. If he met with an accident at 50km and he cover remaining distance at  $\frac{2}{3}$  of his speed. He covered distance in 30 minutes late. If he met with this accident at 60km he would late by 24 minutes , then find the distance?
- A) 100km  
B) 120km  
C) 110km  
D) 150km

**View Answer**

**Option A**

**Solution:**

He saves 6minutes by covering 10km more distance with his normal speed. For 30minutes he cover 50km and 50km are initial  
 $\text{So distance} = 50 + 50 = 100\text{km.}$

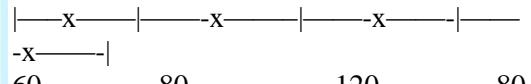
1. A man covers a distance in four equal parts. He covers first part with speed of 60 kmph, second part with 80 kmph and third part and fourth part with 120 kmph and 80 kmph respectively. Find the average speed of his journey.

- A) 60 kmph  
B) 80 kmph  
C) 120 kmph  
D) 100 kmph  
E) None of these

**View Answer**

**Option B**

**Solution:**



Let  $x = 240$  km (LCM of speed)

$$\text{Time} = 240/60 + 240/80 + 240/120$$

$$+ 240/80 = 4 + 3 + 2 + 3 = 12 \text{ hours}$$

Avg speed = total distance/ total time

$$\text{time} = 240 * 4 / 12 = 80 \text{ kmph}$$

2. A thief steals a car at 8 PM and starts driving at a speed of 80 kmph. The theft came into light at 9 PM and police started to chase him at 9 PM at a speed of 100 kmph. At what time will he be caught?
- A) 2 AM  
B) 3 AM  
C) 12 PM  
D) 1 AM  
E) None of these

**View Answer**

**Option D**

**Solution:**

Thief has moved 80 Km in 1 hour, So

$$\text{distance} = 80 \text{ km}$$

$$\text{Time} = \text{Distance} / \text{relative speed} = 80 / (100 - 80) = 4 \text{ hour}$$

$$9 \text{ PM} + 4 = 1 \text{ AM}$$

3. A train starts from P at 8 PM and reaches Q at 11 PM. Another train starts from Q at 6 PM and reaches P at 11 PM. Find at what time they will meet each other?
- A) 9:7.5 PM  
B) 8:7.5 PM  
C) 10:7.5 PM  
D) 9:7.5 PM

E) None of these

**View Answer**

**Option A**

**Solution:**

Time (A:B)=3:5 => Speed(A:B)=5:3  
 Let distance=150 km  
 Speed A= 50 kmph ; Speed B=30 kmph  
 B starts 6 PM, in 2 hours i.e (till 8 PM  
 when A starts) it will move  $2 \times 30 = 60$  km  
 remaining =  $150 - 60 = 90$  km  
 $\text{Time} = \text{distance/relative speed} = 90/80 = 1$  hour 7 mins 30 sec  
 hence time=8 PM + 1 hour 7 mins 30 sec= 9:7.5 PM

4. If a person goes to school fro his home at a speed of 4 kmph, he reaches 10 minute late. If he goes at a speed of 6 kmph he reaches 10 mins early. Find the distance between school and home
  - A) 5 km
  - B) 8 km
  - C) 6 km
  - D) 4 km
  - E) None of these

**View Answer**

**Option D**

**Solution:**

Direct Formula Distance= [Speed 1\*Speed 2/(S1-S2)]\* [(Late + Early)/60]  
 $= 4*6/(6-4)*[(10+10)/60] = 4$  km

5. A man takes 7 hours 30 mins in walking to a certain distance and riding back. He would have gained 3 hours 10 mins by riding both ways. How long he would take to walk both ways?
  - A) 600 mins
  - B) 640 mins
  - C) 680 mins
  - D) 580 mins
  - E) None of these

**View Answer**

**Option B**

**Solution:**

7 hour 30 mins – 3 hours 10 mins = 4 hours  
 20 mins(When riding both ways)  
 $\Rightarrow 2$  hour 10 mins riding in one way  
 ride+walk= 7 hour 30 min —(i)  
 ride= 2 hour 10 min —(ii)  
 $\text{Diff (i)-(ii)} = \text{walk one way} = 5$  hour 20 min  
 walk 2 way= 10 hour 40 mins=640 mins

6. In covering a distance the speed of A and B are in the ratio 4:5. A takes 40 mins more than B to reach the destination. The time taken by A to reach the destination is?
  - A)  $2\frac{1}{3}$  hours
  - B)  $4\frac{1}{3}$  hours
  - C)  $3\frac{1}{3}$  hours
  - D)  $5\frac{1}{3}$  hours
  - E) None of these

**View Answer**

**Option C**

**Solution:**

Speed (A:B)=4:5  
 Time (A:B)=5:4  
 $\text{Time diff}=5-4=1$   
 $1=40$  min  
 $5=200$  mins=  $3\frac{1}{3}$  hours

7. Two person cover some distance at a speed of 35 kmph and 40 kmph respectively. Find the distance if one person takes 15 minute more than the other.
  - A) 60 km
  - B) 50 km
  - C) 80 km
  - D) 70 km
  - E) None of these

**View Answer**

**Option D**

**Solution:**

Speed (A:B)=35:40=7:8  
 $\text{Time}(A:B)=8:7 \rightarrow \text{Diff}=1$   
 $1=15$   
 $8=120$  min=2 hour  
 $\text{Distance}=35*2= 70$  km

8. Two busses start at same time from two stations and move towards each other at the rate of 30 kmph and 35 kmph respectively. When they meet one bus has traveled 60 km more than the other. Find the distance between the two bus stations.
- A) 780 km  
B) 720 km  
C) 680 km  
D) 750 km  
E) None of these

**View Answer****Option A****Solution:**

The bus with higher speed moves  $35 - 30 = 5$  km more than the other in 1 hour means it will move 60 more in  $60/5 = 12$  hours  
Hence distance =  $30 \times 12 + 35 \times 12 = 780$  km

9. A train crosses a pole in 20 seconds and a platform in 45 seconds. If the length of platform is 500 meters find the sum of length of train and platform
- A) 800 m  
B) 900 m  
C) 1000 m  
D) 950 m  
E) None of these

**View Answer****Option B****Solution:**

Train : Platform = 20 : 25  
 $25 = 500$   
 $20 = 400$   
total length = 900 m

10. A train overtakes two persons who are walking in the same direction in which the train is moving, at the rate of 2 kmph and 4 kmph respectively and passes them completely in 9 seconds and 10 seconds respectively. Find the length of the train.
- A) 50 m  
B) 40 m  
C) 60 m

- D) 70 m  
E) None of these

**View Answer****Option A****Solution:**

$$\begin{aligned}x/(y-2) * 18/5 &= 10 \quad \text{---(i)} \\x/(y-4) * 18/5 &= 9 \quad \text{---(ii)}\end{aligned}$$

solve and get  $x = 50$  m

The distance between two towns A and B is 545 km. A train starts from town A at 8 A.M. and travels towards town B at 80 km/hr. Another train starts from town B at 9 : 30 A.M. and travels towards town A at 90 km/hr. At what time will they meet each other?

- A) 11:30 AM  
B) 12:30 PM  
C) 12:00 Noon  
D) 1:00 PM  
E) 11:00 AM

**View Answer****Option C****Solution:**

With 80 km/hr, distance travelled in 1 n half hours (9:30AM – 8AM) is  $3/2 * 80 = 120$  Km  
Now second train also starts, and at this time distance between both trains is  $(545 - 120) = 425$  km

Relative speed =  $80 + 90 = 170$  km/hr (when travelling in opposite direction, add speed)  
So time when they meet =  $425/170 = 2.5$  hrs  
So after 9:30 AM they meet after 2.5 hrs, so 12 AM

A bus can travel 560 km in 8 hours. The ratio of speed to train to that of car is 13 : 8. If the speed of bus is  $7/8$  of the speed of car, find in how much time train can cover 520 km distance.

- A) 3 hours  
B) 4 hours  
C) 6 hours  
D) 5 hours  
E) 2 hours

**View Answer**

**Option B****Solution:**

Speed of bus =  $560/8 = 70$  km/hr  
 So speed of car =  $8/7 * 70 = 80$  km/hr  
 So speed of train = 130 km/hr  
 So time taken by train to cover 520 km =  $520/130 = 4$  hours

- A person has to travel from point A to point B in car in a scheduled time at uniform speed. Due to some problem in car engine, the speed of car has to be decreased by  $1/5^{\text{th}}$  of the original speed after covering 30 km. With this speed he reaches point B 45 minutes late than the scheduled time. Had the engine been malfunctioned after 48 km, he would have reached late by only 36 minutes. Find the distance between points A and B.  
 A) 120 km  
 B) 80 km  
 C) 100 km  
 D) 150 km  
 E) 70 km

**View Answer****Option A****Solution:**

Let total distance be  $d$  km, speed =  $u$ , and time =  $t$  hours

So case 1:

30 km with speed  $u$ ,  $(d-30)$  with speed  $1 - 1/5 = 4/5$  of  $u$

If he would have travelled  $(d-30)$  by speed  $u$ , then time =  $(d-30)/u$

But now time is =  $(d-30)/(4u/5) = 5(d-30)/4u$

And difference in timings is 45 minutes =  $3/4$  hour

So  $5(d-30)/4u - (d-30)/u = 3/4$

Solve (

case 2:

48 km with speed  $u$ ,  $(d-48)$  with speed  $1 - 1/5 = 4/5$  of  $u$

If he would have travelled  $(d-48)$  by speed  $u$ , then time =  $(d-48)/u$

But now time is =  $(d-48)/(4u/5) = 5(d-48)/4u$

And difference in timings is 36 minutes =  $3/5$  hour

So  $5(d-48)/4u - (d-48)/u = 3/5$

Solve  $(d-48)/4u = 3/5$

Divide both equations,  $d = 120$  km

Towns A and B are 225 km apart. Two cars P and Q travel from towards each other from towns A and B respectively and meet after 3 hours. If the speed of P be  $1/2$  of its original speed and Q be  $2/3$  of its original speed, they would have met after 5 hours. Find the speed of the faster car.

- A) 50 km/hr  
 B) 40 km/hr  
 C) 45 km/hr  
 D) 30 km/hr  
 E) 60 km/hr

**View Answer****Option C****Solution:**

Let speeds be  $x$  km/hr and  $y$  km/hr

So  $225/(x+y) = 3$

And  $225/(x/2 + 2y/3) = 5$

Solve,  $x = 30$ ,  $y = 45$

From point A, Priya and Bhavna start cycling towards point B which is 60 km away from A. The speed of Priya is 10 km/hr more than the speed of Bhavna. After reaching point B, Priya returns towards point A and meets Bhavna 12 km away from point B. Find the speed of Bhavna.

- A) 40 km/hr  
 B) 15 km/hr  
 C) 30 km/hr  
 D) 20 km/hr  
 E) 45 km/hr

**View Answer****Option D****Solution:**

Speed of Bhavna =  $x$  km/hr, of priya =  $(x+10)$  km/hr

Distance covered by Priya =  $60+12 = 72$  km

And by Bhavna =  $60-12 = 48$  km

So

$$72/(x+10) = 48/x$$

Solve,  $x = 20$

A train crosses 2 men running in the same direction at speeds 5 km/hr and 8 km/hr in 12 seconds and 15 seconds respectively. Find the speed of the train.

- A) 30 km/hr  
 B) 24 km/hr

- C) 25 km/hr  
D) 35 km/hr  
E) 20 km/hr

[View Answer](#)

**Option E**

**Solution:**

Let the speed of the train is  $s$  km/hr and its length is  $a$  m.

So

$$\frac{a}{[(s-5)*(5/18)]} = 12; \text{ [In same direction relative speed is obtained by subtracting. Also changing km/hr to m/s]}$$

$$\text{Solve } 3a = 10s - 50 \dots \dots \dots \text{(i)}$$

And also

$$\frac{a}{[(s-8)*(5/18)]} = 15;$$

$$6a = 25s - 200 \dots \dots \dots \text{(ii)}$$

Solve (i) and (ii)

$$s = 20 \text{ km/hr}$$

A train which is travelling at 80 km/hr meets another train travelling in same direction and then leaves it 150 m behind in next 20 seconds. Find the speed of the second train.

- A) 72 km/hr  
B) 53 km/hr  
C) 64 km/hr  
D) 59 km/hr  
E) 65 km/hr

[View Answer](#)

**Option B**

**Solution:**

Let speed of the 2nd train is  $s$  m/sec.

$$80 \text{ km/hr} = (80*5)/18 = 200/9 \text{ m/sec.}$$

Trains are travelling in same direction. So

$$(200/9) - s = 150/20$$

$$\text{Solve, } s = \frac{265}{18} \text{ m/sec} = \frac{265}{18} * \frac{18}{5} = 53 \text{ km/hr}$$

In a 500 m race C can beat B by 30 m, and in a 400 m race B can beat C by 20 m. Then in 200 m race A will beat C by how much distance (in m)?

- A) 58.2 m  
B) 68.4 m  
C) 63.5 m  
D) 72.8 m  
E) 55.2 m

[View Answer](#)

**Option B**

**Solution:**

When A runs 500 m, B runs 470 m

$$\text{So when A runs 200 m, B runs } \frac{470}{500} * 200 = 188 \text{ m}$$

When B runs 400 m, C runs 280 m

$$\text{So when B runs 188 m, C runs, } \frac{280}{400} * 188 = 131.6 \text{ m}$$

$$\text{So A will beat C by } (200 - 131.6) = 68.4 \text{ m}$$

2 towns A and B are 300 km apart. 2 trains start travelling from town A towards town B such that the second train leaves 8 hours late than the first one. They both arrive at town B simultaneously. If the speed of the faster train is 10 km/hr more than the speed of the slower train, find the time taken by the slower train to complete the journey.

- A) 25 hours  
B) 22 hours  
C) 14 hours  
D) 18 hours  
E) Cannot be determined

[View Answer](#)

**Option E**

**Solution:**

Let speed of the slower train is  $x$  km/hr, then speed of faster is  $(x+10)$  kmph.

Let faster train takes  $t$  hours to cover the distance 300 km, then slower one takes  $(t+8)$  hours.

Distance is same. So

$$x/(x+10) = t/(t+8)$$

$$\text{Solve, } 4x = 5t$$

A man leaves from point A at 4 AM and reaches point B at 6 AM. Another man leaves from point B at 5 AM and reaches point A at 8 AM. Find the time when they meet.

- A) 6:20 AM  
B) 6:15 AM  
C) 5:45 AM  
D) 5:36 AM  
E) 5:30 AM

[View Answer](#)

**Option D**

**Solution:**

Use formula:

$$4 \text{ AM} + (6-4)*(8-4)/[(6-4)+(8-5)]$$

gives  $4 \text{ AM} + 8/5$

$$8/5 \text{ hours} = 1 \frac{3}{5} \text{ hours} = 1 \frac{3}{5} * 60 = 1 \text{ hour } 36$$

minutes

So  $4 \text{ AM} + 1 \text{ hour } 36 \text{ minutes} = 5:36 \text{ AM}$

# BOAT & STREAM QUESTIONS WITH SOLUTION

[REDACTED] ADDA.COM

1. Ram goes downstream with a boat to some destination and returns upstream to his original places in 6 hours. If the speed of the boat in still water and the stream are 12km/hr and 5 km/hr respectively, then find the distance of the destination from the starting position.
- A) 25km  
B) 26.67km  
C) 33km  
D) 29.75km  
E) 20km

**View Answer****Option D****Solution:**

$$T = \frac{2xD}{(x^2 - y^2)}$$

$$\Rightarrow D = \frac{119 \times 6}{2 \times 12} = 29.75\text{km}$$

2. A boat travels downstream for 14km and upstream for 9km. If the boat took total of 5 hours for its journey. What is the speed of the river flow if the speed of the boat in still water is 5km/hr?
- A) 8km/hr.  
B) 2km/hr.  
C) 6km/hr.  
D) 5km/hr.  
E) 3km/hr.

**View Answer****Option B****Solution:**

Let the speed of the stream be  $x$  km/hr.  
 Upward speed =  $(5 - x)$  km/hr.  
 Downward speed =  $(5 + x)$  km/hr.  
 $\frac{14}{5+x} + \frac{9}{5-x} = 5$   
 $\Rightarrow x = 2\text{km/hr.}$

3. When a person is moving in the direction perpendicular to the direction of the current is 20km/hr , speed of the current is 5km/hr. Then find the speed of the person against the current?
- A) 10km/hr.  
B) 15km/hr.

- C) 30km/hr.  
D) 25km/hr.  
E) 11km/hr.

**View Answer****Option A****Solution:**

Speed of the person =  $20 - 5 = 15\text{km/hr}$   
 Speed of the person against the current =  $15 - 5 = 10\text{km/hr.}$

4. A boat goes 6 km an hour in still water, it takes thrice as much time in going the same distance against the current comparison to the direction of the current. Find the speed of the current.
- A) 5km/hr  
B) 3km/hr  
C) 8km/hr  
D) 9km/hr  
E) 12km/hr

**View Answer****Option B****Solution:**

Let the speed of the stream be  $x$  km/hr  
 speed of the still water = 6 km/hr  
 Downstream speed =  $(6+x)$  km/hr  
 Upstream speed =  $(6-x)$  km/hr  
 Now,  
 $3[D/(6+x)] = D/(6-x)$   
 $\Rightarrow x = 3\text{ km/hr}$

5. There are two places A and B which are separated by a distance of 100k. Two boats starts form both the places at the same time towards each other. If one boat is going downstream then the other one is going upstream, if the speed of A and B is 12km/hr. and 13km/hr. respectively. Find at how much time will they meet each other.
- A) 10hrs.  
B) 4 hrs.  
C) 8hrs.  
D) 6hrs.

E) 7hrs.

**View Answer****Option B****Solution:**

$$\text{Downstream} = (12+x)\text{km/hr}$$

$$\text{Upstream} = (13-x)\text{km/hr}$$

Time = Distance / Relative speed

$$\text{Relative speed} = 12 + x + 13 - x = 25 \text{ km/hr}$$

$$\text{Time} = 100/25 = 4 \text{ hours}$$

E) 5.5 hrs

**View Answer****Option D****Solution:**

Let  $x$  be speed of the boat and  $y$  be the speed of the current.

$$\text{Downstream speed} = x + y$$

$$\text{Upstream speed} = x - y$$

$$x - y = 30/6 = 5 \text{ km/hr.}$$

Now,

$$x = 4y$$

$$x - y = 4y - y = 3y$$

$$\Rightarrow x = (20/3)\text{km/hr and } y = (5/3)\text{km/hr}$$

Therefore,  $x + y = (25/3) \text{ km/hr.}$

$$\text{Time during downstream} = 90/25 = 3.6 \text{ hrs.}$$

6. A girl was travelling in a boat, suddenly wind starts blowing and blows her hat and started floating back downstream. The boat continued to travel upstream for 12 more minutes before she realized that her hat had fallen off. She turned back downstream and she caught her hat as soon as she reached the starting point. If her hat flew off exactly 2km from where she started. What is the speed of the water?
- A) 12km/hr
  - B) 8km/hr
  - C) 5km/hr
  - D) 9km/hr
  - E) 10km/hr

**View Answer****Option C****Solution:**

$$\text{Distance} = 2 \text{ km}$$

$$\text{Time} = 2 * 12 (\text{doubles}) = 24 \text{ mins.} = 2/5 \text{ hr.}$$

$$\text{Speed} = 2 / (2/5) = 5 \text{ km/hr.}$$

7. A ship sails 30km of a river towards upstream in 6 hours. How long will it take to cover the same distance downstream. If the speed of the current is  $(1/4)$ rd of the speed of the boat in still water.
- A) 2 hrs
  - B) 4.5hrs
  - C) 5 hrs
  - D) 3.6hrs

8. A man can row 6km/hr in still water. If the speed of the current is 2km/hr, it takes 4 hours more in upstream than in the downstream for the same distance. Find the distance.
- A) 44km
  - B) 40km
  - C) 32km
  - D) 50km
  - E) 45km

**View Answer****Option C****Solution:**

Let the distance be  $D$ .

$$\text{Downstream speed} = 8 \text{ km/hr}$$

$$\text{Upstream speed} = 4 \text{ km/hr}$$

From the question,

$$\text{Upstream} = \text{Downstream} + 4$$

$$D/4 = D/8 + 4$$

$$D/4 = (D + 32)/8$$

$$D = 32 \text{ km}$$

9. The speed of the motor boat is that of the current of water is  $36:5$ . The boat goes along with the current in 5 hours 10 minutes. How much time it will take to come back.
- A)  $45/2$

- B) 41/6  
C) 55/3  
D) 38/7  
E) 52/8

[View Answer](#)

### Option B

#### Solution:

$$\begin{aligned} S_1/S_2 &= T_1/T_2 \\ (36 + 5)/(36 - 5) &= x/(31/6) \\ \Rightarrow x &= 41/6 = 6 \text{ hours } 50 \text{ minutes} \end{aligned}$$

10. In a fixed time, a boy swims double the distance along the current that he swims against the current. If the speed of the current is 3km/hr., then what is the speed of the boy in still water ?
- A) 9 km/hr  
B) 13km/hr  
C) 15km/hr  
D) 22km/hr  
E) 10km/hr

[View Answer](#)

### Option A

#### Solution:

Let the speed of boy in still water be  $x$  km/hr  
and the speed of current is given = 3 km/hr  
Downstream speed =  $(x+3)$  km/hr  
Upstream speed =  $(x-3)$  km/hr  
Let time be  $t$  hours  
 $(x+3)*t = 2 \{(x-3)*t\}$   
 $\Rightarrow x = 9$  km/hr

1. A man can row 40 kmph in still water and the river is running at 10 kmph. If the man takes 2 hr to row to a place and back, how far is the place?
- A) 38km  
B) 37.5km  
C) 40.75km  
D) 41km  
E) None

[View Answer](#)

### Option B

#### Solution:

$$\begin{aligned} \text{Given } u &= 40, v = 10 \\ D &= t[(u^2 - v^2)/2u] \\ &= 2 * [(40^2 - 10^2)/2 * 40] \\ &= 2 * (1600 - 100)/80 \\ &= 2 * 1500/80 \Rightarrow 37.5 \text{ km} \end{aligned}$$

2. A man rows to a place 60 km distant and come back in 35 hours. He finds that he can row 4 km with the stream in the same time as 3 km against the stream. Find the speed in still water and in stream:
- A) 1.5, 2  
B) 0.5, 2.5  
C) 3.5, 0.5  
D) 2, 2.5  
E) None

[View Answer](#)

### Option C

#### Solution:

If he moves 4 km downstream in  $x$  hours.  
Downstream speed =  $4/x$   
Upstream speed =  $3/x$   
Then  $60/(4/x) + 60/(3/x) = 35$   
 $60[(3x+4x)/12] = 35$   
 $60*7x/12 = 35$   
 $5*7x = 35 \Rightarrow x = 1 \text{ km.}$   
Then Downstream speed =  $4 \text{ km/hr}$ ,  
Upstream speed =  $3 \text{ km/hr}$   
 $U = (4+3)/2 = 7/2 = 3.5 \text{ km/hr}$   
 $V = (4-3)/2 = 1/2 = 0.5 \text{ km/hr}$

3. Speed of a boat in standing water is 12 kmph and the speed of the stream is 3 kmph. A man rows to a place at a distance of 6300 km and comes back to the starting point. The total time taken by him is:
- A) 1120hrs  
B) 1000hrs  
C) 980hrs  
D) 850hrs  
E) None

**View Answer****Option A****Solution:**

Downstream speed =  $(12 + 3) = 15 \text{ km/hr}$   
 Upstream speed =  $(12 - 3) = 9 \text{ km/hr}$   
 Total time taken =  $6300/15 + 6300/9 = 420 + 700 = > 1120 \text{ hrs.}$

4. A boat takes 26 hours for travelling downstream from point A to point B and coming back to point C midway between A and B. If the velocity of the stream is 4 km/hr and the speed of the boat in still water is 10 km/hr, what is the distance between A and B?
- A) 210km
  - B) 185km
  - C) 140km
  - D) 168km
  - E) None

**View Answer****Option D****Solution:**

Downstream speed =  $10+4 = 14$   
 Upstream speed =  $10-4 = 6$   
 Now total time is 26 hours  
 If distance between A and B is d, then  
 distance BC =  $d/2$   
 Now distance/speed = time, so  
 $d/14 + (d/2)/6 = 26$   
 $13d/84 = 26$   
 Solve,  $d = 168 \text{ km}$

5. At his usual rowing rate, Rahul can travel 12 miles downstream in a certain river in 6 hours less than it takes him to travel the same distance upstream. But if he could double his usual rowing rate for his 24-mile round trip, the downstream 12 miles would then take only one hour less than the upstream 12 miles. What is the speed of the current in miles per hour?
- A)  $2\frac{2}{3} \text{ mph}$
  - B)  $2 \text{ mph}$
  - C)  $1\frac{1}{4} \text{ mph}$
  - D)  $3 \text{ mph}$

E) None

**View Answer****Option A****Solution:**

Let the speed of Rahul in still water be  $x$  mph  
 and the speed of the current be  $y$  mph  
 Then, Speed upstream =  $(x - y)$  mph  
 Speed downstream =  $(x + y)$  mph  
 Distance = 12 miles  
 Time taken to travel upstream – Time taken to travel downstream = 6 hours  
 $12/(x-y) - 12/(x+y) = 6$   
 $x^2 = y^2 + 4y - 1$   
 Now he doubles his speed. i.e., his new speed =  $2x$   
 Now, Speed upstream =  $(2x - y)$  mph  
 Speed downstream =  $(2x + y)$  mph  
 In this case, Time taken to travel upstream – Time taken to travel downstream = 1 hour  
 $12/(2x-y) - 12/(2x+y) = 1$   
 $4x^2 = y^2 + 24y - 2$   
 From 1 and 2 we get  
 $4y + y^2 = (24y + y^2)/4$   
 $Y = 8/3 = > 2\frac{2}{3} \text{ mph}$

6. There is a road beside a river. Two friends started from a place A, moved to a temple situated at another place B and then returned to A again. One of them moves on a cycle at a speed of 6 km/hr, While the other sails on a boat at a speed of 8 km/hr. If the river flows at the speed of 6 km/hr, which of the two friends will return to place A first?
- A) Cyclist
  - B) Sailor
  - C) Both come at same time
  - D) Anyother
  - E) None

**View Answer****Option A****Solution:**

Average speed of the cyclist =  $6 \text{ km/hr}$

Downstream speed=8+6=14 km/hr

Upstream speed =8–6=2 km/hr

Therefore, average speed of the sailor  
 $=2*14*2/(14+2)$

=3.5km/hr

Average speed of the cyclist is more than that of the sailor. Therefore, the cyclist will return first.

7. A boat running upstream takes 8 hours 48 minutes to cover a certain distance, while it takes 4 hours to cover the same distance running downstream. What is the ratio between the speed of the boat and speed of the water current respectively?
- A) 5:4  
 B) 8:3  
 C) 7:6  
 D) 4:5  
 E) None

**View Answer**

### Option B

#### Solution:

Let the man's rate upstream be  $x$  kmph and that downstream be  $y$  kmph.

Then, distance covered upstream in 8 hrs 48 min = Distance covered downstream in 4 hrs.

$$X*8\frac{4}{5}=4y$$

$$44/5x=4y$$

$$Y=11/5x.$$

$$\text{Required ratio } (y+x)/2=(y-x)/2$$

$$16x/10:6x/10$$

$$8:3$$

8. A man takes thrice as long to row a distance against the stream as to row the same distance in favour of the stream. The ratio of the speed of the boat (in still water) and the stream is:
- A) 2:1  
 B) 3:2  
 C) 1:2  
 D) 2:3  
 E) None

**View Answer**

### Option A

#### Solution:

Lets upstream be  $x$  km/hr

Downstream be  $3x$  km/hr

$$U: V=(3x+x)/2: (3x-x)/2$$

$$4x/2:2x/2$$

$$2:1$$

9. A boat running downstream covers a distance of 40km in 4hrs and covering the same distance upstream in 8hrs. What is the speed of a boat in still water.
- A) 6km/hr  
 B) 7km/hr  
 C) 7.5km/hr  
 D) 8.5km/hr  
 E) None

**View Answer**

### Option C

#### Solution:

$$\text{Downstream speed}=40/4=10\text{km/hr}$$

$$\text{Upstream speed}=40/8=5\text{km/hr}$$

So speed of boat in still

$$\text{water}=(10+5)/2=15/2$$

$$=7.5\text{km/hr}$$

10. A boat can travel 3.5km upstream in 14min. If the ratio of the speed of the boat in still water to the speed of the stream is 7:2. How much time will the boat take to cover 36km downstream ?
- A) 65min  
 B) 80min  
 C) 75min  
 D) 70min  
 E) None

**View Answer**

### Option B

#### Solution:

$$\text{Speed} = 7x:2x$$

$$\text{Downstream} = 9x; \text{upstream} = 5x$$

$$\text{Upstream speed} = 3.5*60/14 = 15\text{kmph}$$

$$5x = 15$$

$$x = 3$$

$$\text{Downstream} = 9*3 = 27$$

$$\text{Time taken for } 36\text{km} = 36*60/27 = 80\text{min}$$

1. Vimal can row a certain distance downstream in 14 hours and return the same distance in 21 hours. If the speed of the stream is 6 kmph, Find the speed of Vimal in the still water?
- A) 21 kmph
  - B) 15 kmph
  - C) 30 kmph
  - D) 35 kmph
  - E) None of these

[View Answer](#)

#### Option C

##### Solution:

Speed of Vimal in still water =  $x$

Downstream Speed =  $(x + 6)$

Upstream Speed =  $(x - 6)$

Downstream Distance = Upstream Distance

$$14(x + 6) = 21(x - 6)$$

$$2x + 12 = 3x - 18$$

$$x = 30 \text{ kmph.}$$

2. Rahul can row a certain distance downstream in 12 hour and return the same distance in 18 hour. If the speed of Rahul in still water is 12 kmph, find the speed of the stream?
- A) 2.1 kmph
  - B) 1.5 kmph
  - C) 4.4 kmph
  - D) 2.4 kmph
  - E) None of these

[View Answer](#)

#### Option D

##### Solution:

Let the speed of the stream be  $x$  kmph

Down stream =  $(12+x)$

Up stream =  $(12-x)$

suppose the distance traveled be  $y$

$$y/(12+x) = 12 \quad \text{---(1)}$$

$$y/(12-x) = 18 \quad \text{---(2)}$$

From eqn (1) and (2)

$$x = 2.4 \text{ kmph}$$

3. Anil can row 18 kmph in still water and he finds that it takes him twice as long to row up as to row down the river. Find the rate of stream?
- A) 5 kmph
  - B) 6 kmph
  - C) 4 kmph
  - D) 3 kmph
  - E) None of these

[View Answer](#)

#### Option B

##### Solution:

Stream Speed =  $a$  kmph

Time Taken =  $x$  km

Downstream speed =  $(18 + a)$  kmph

Upstream speed =  $(18 - a)$  kmph

Time taken to travel downstream =  $2 * \frac{x}{18+a}$

Time taken to travel upstream

$$(18 + a) / x = 2(18 + a) / x$$

$$18 + a = 36 - 2a$$

$$3a = 18$$

$$a = 6 \text{ kmph}$$

OR USE FORMULA

Speed of boat =  $[t_u+t_d]/[t_u-t_d] * \text{Speed of stream}$

So  $18 = [2x + x]/[2x - x] * \text{Speed of stream}$

4. Mr. Suresh can row to a place 48 km away and come back in 14 hours. He finds that he can row 4 km with the stream in the same time as 3 km against the stream. The rate of the stream is?
- A) 1 kmph
  - B) 3 kmph
  - C) 4 kmph
  - D) 6 kmph
  - E) None of these

[View Answer](#)

**Option A****Solution:**

Downstream speed =  $4/x$  kmph  
 upstream speed =  $3/x$  kmph  
 $48/(4/x) + 48/(3/x) = 14$   
 Solving we get  $x = 1/2$  kmph  
 So, Speed of downstream = 8 kmph, Speed of upstream = 6 kmph  
 Stream Speed =  $1/2(8 - 6)$  kmph = 1 kmph

5. Mr.Ramesh's speed with the current is 20 kmph and the speed of the current is 5 kmph. Ramesh's speed against the current is?
- A) 15 kmph
  - B) 19 kmph
  - C) 17 kmph
  - D) 10 kmph
  - E) None of these

**View Answer****Option D****Solution:**

Ramesh's speed with the current = 20 kmph  
 $\Rightarrow$  Ramesh's speed + speed of the current = 20 kmph  
 Speed of the current = 5 kmph  
 Speed of Ramesh =  $20 - 5 = 15$  kmph  
 Ramesh's speed against the current = speed of Ramesh - speed of the current =  $15 - 5 = 10$  kmph

6. Ravi can row 12 kmph in still water when the river is running at 6 kmph it takes him 1 hour to row to a place and to come back. How far is the place?
- A) 5.5 km
  - B) 4.5 km
  - C) 8.2 km
  - D) 4.2 km
  - E) None of these

**View Answer****Option B****Solution:**

Downstream Speed = 18 kmph

Upstream Speed = 6 kmph

Distance = x

$$x/18 + x/6 = 1$$

$$18x + 6x = 108$$

$$24x = 108$$

$$x = 4.5 \text{ km}$$

**OR USE FORMULA:**Distance = time  $[B^2 - R^2]/2*B$ So distance =  $1 * [12^2 - 6^2]/2*12$ 

$$\text{Distance} = 108/24 = 4.5 \text{ km}$$

7. The difference between downstream speed and upstream speed is 2 kmph and the total time taken during upstream and downstream is 2 hours. What is the upstream speed, if the downstream and upstream distance are 2 km each?
- A) 5.2 kmph
  - B) 3.7 kmph
  - C) 2.8 kmph
  - D) 1.4 kmph
  - E) None of these

**View Answer****Option D****Solution:**

$$\begin{aligned} 2/x + 2/(x+2) &= 2. \\ x^2 - 2 &= 0 \\ x &= 1.414 \text{ kmph} \end{aligned}$$

8. Rani can row 8 kmph in still water. If the river is running at 4 kmph it takes 90 minutes to row to a place and back. How far is the place?
- A) 4.5 km
  - B) 8.2 km
  - C) 4.2 km
  - D) 3.5 km
  - E) None of these

**View Answer****Option A****Solution:**

Speed in still water = 8 kmph

Speed of the stream = 4 kmph

Upstream Speed =  $(8-4) = 4 \text{ kmph}$   
 Downstream Speed =  $(8+4) = 12 \text{ kmph}$   
 Total time = 90 minutes =  $90/60 = 3/2 \text{ hrs}$   
 Let x is the distance  
 $x/12 + x/4 = 3/2$   
 $x = 4.5 \text{ km}$

9. Sumi can swim 6 kmph in still water. If the velocity of the stream be 2 kmph, the time taken by her to swim to a place 24 km upstream and back, is?
- A) 6 hours
  - B) 5 hours
  - C) 4 hours
  - D) 8 hours
  - E) 9 hours

**View Answer****Option E****Solution:**

Upstream speed = speed of man – speed of stream =  $6 - 2 = 4$   
 Downstream speed = speed of man + speed of stream =  $6 + 2 = 8$   
 Time taken to go upstream =  
 $\text{distance}/\text{speed} = 24/4 = 6 \text{ hour}$   
 Time taken to go downstream =  
 $\text{distance}/\text{speed} = 24/8 = 3 \text{ hour}$   
 Total time =  $6+3 = 9 \text{ hour}$

10. Raghu can row 96 km downstream in 8 hours. If the speed of the current is 3 kmph, then find in what time will be able to cover 12 km upstream?
- A) 6 hours
  - B) 5 hours
  - C) 4 hours
  - D) 8 hours
  - E) 2 hours

**View Answer****Option E****Solution:**

Downstream speed =  $96/8 = 12 \text{ kmph}$   
 Speed of current = 3 kmph  
 Speed of kamal in still water =  $12-3 = 9$

kmph  
 Upstream speed =  $9-3 = 6 \text{ kmph}$   
 Time taken to cover 12 km upstream  $12/6 = 2 \text{ hours}$

- A boat can cover 21 km in the direction of current and 15 km against the current in 3 hours each. Find the speed of current.

- A) 4.5 km/hr
- B) 2.5 km/hr
- C) 3 km/hr
- D) 1 km/hr
- E) 6 km/hr

**View Answer****Option D****Solution:**

Downstream speed =  $21/3 = 7 \text{ km/hr}$   
 Upstream speed =  $15/3 = 5 \text{ km/hr}$   
 So speed of current =  $1/2 * (7-5)$

- A boat in a river with speed of stream as 6 km/hr can travel 7 km upstream and back in 4 hours. What is the speed of the boat in still water?

- A) 10 km/hr
- B) 8 km/hr
- C) 11 km/hr
- D) 12 km/hr
- E) 15 km/hr

**View Answer****Option B****Solution:**

Let speed of boat is x km/hr  
 So

$$7/(x+6) + 7/(x-6) = 4$$

Solve,  $x = 8 \text{ km/hr}$  [ignore the negative root because speed cannot be negative]

- A boat can cover 40 km upstream and 60 km downstream together in 13 hours. Also it can cover 50 km upstream and 72 km downstream together in 16 hours. What is the speed of the boat in still water?

- A) 5.5 km/hr
- B) 6.5 km/hr
- C) 8.5 km/hr

- D) 3.5 km/hr  
E) None of these

**View Answer**

**Option C**

**Solution:**

Upstream speed in both cases is 40 and 50. Ratio is  $40 : 50 = 4 : 5$ . So let times in both cases be  $4x$  and  $5x$

Downstream speed in both cases is 60 and 72 resp. Ratio is  $60 : 72 = 5 : 6$ . So let times in both cases be  $5y$  and  $6y$

$$\text{So } 4x + 5y = 13$$

$$\text{and } 5x + 6y = 16$$

$$\text{Solve both, } x = 2, y = 1$$

$$\text{So upstream speed is } = 40/4x = 5 \text{ km/hr}$$

$$\text{And downstream} = 60/5y = 12 \text{ km/hr}$$

$$\text{So speed of boat is } 1/2 * (5+12)$$

A boat can row to a place 56 km away and come back in 22 hours. The time to row 21 km with the stream is same as the time to row 12 km against the stream. Find the speed of boat in still water.

- A) 1.5 kmph  
B) 3.5 kmph  
C) 5.5 kmph  
D) 7.5 kmph  
E) None of these

**View Answer**

**Option C**

**Solution:**

Downs

$$\text{Upstream speed} = 12/x \text{ km/hr}$$

$$56/(21/x) + 56/(12/x) = 22$$

$$\text{Solve, } x = 3 \text{ km/hr}$$

So, downstream speed = 7 km/hr, upstream speed = 4 km/hr

$$\text{Speed of boat} = 1/2 * (7 + 4) \text{ km/hr}$$

A boat travels downstream from point A to B and comes back to point C half distance between A and B in 18 hours. If speed of boat is still water is 7 km/hr and distance AB = 80 km, then find the downstream speed.

- A) 15 km/hr  
B) 18 km/hr  
C) 12 km/hr  
D) 10 km/hr

- E) 6 km/r

**View Answer**

**Option D**

**Solution:**

A to B is 80, so B to is  $80/2 = 40$  km

Let speed of current =  $x$  km/hr

$$\text{So } 80/(7+x) + 40/(7-x) = 18$$

$$\text{Solve, } x = 3 \text{ km/hr}$$

$$\text{So downstream speed} = 7 + 3 = 10 \text{ km/hr}$$

A boat can cover 20 km upstream and 32 km downstream together in 3 hours. Also it can cover 40 km upstream and 48 km downstream together in 5 and half hours. What is the speed of the current?

- A) 13 km/hr  
B) 8 km/hr  
C) 7 km/hr  
D) 11 km/hr  
E) 16 km/hr

**View Answer**

**Option D**

**Solution:**

Upstream speed in both cases is 20 and 20 resp. Ratio is  $20 : 40 = 1 : 2$ . So let times in both cases be  $x$  and  $2x$

Downstream speed in both cases is 32 and 48 resp. Ratio is  $32 : 48 = 2 : 3$ . So let times in both cases be  $2y$  and  $3y$

$$\text{So } x + 2y = 3$$

$$\text{and } 2x + 3y = 5 \frac{1}{2}$$

$$\text{Solve both, } x = 2, y = 0.5$$

$$\text{So upstream speed is } = 20/x = 10 \text{ km/hr}$$

$$\text{And downstream} = 32/2y = 32 \text{ km/hr}$$

$$\text{So speed of boat is } 1/2 * (32-10)$$

Speed of boat in still water is 14 km/hr while the speed of current is 10 km/hr. If it takes a total of 7 hours to row to a place and come back, then how far is the place?

- A) 30 km  
B) 18 km  
C) 24 km  
D) 32 km  
E) None of these

**View Answer**

**Option C**

**Solution:**

**USE FORMULA:**

Distance = total time \*  $[B^2 - R^2]/2*B$

So distance =  $7 * [14^2 - 10^2]/2*14$

Distance = 24 km

- A man can row a certain distance downstream in 4 hours and return the same distance in 8 hours. If the speed of current is 16 km/hr, find the speed of man in still water.
- A) 47 km/hr  
B) 48 km/hr  
C) 42 km/hr  
D) 50 km/hr  
E) None of these

**View Answer**

**Option B****Solution:**

Use formula:

$$B = [t_u + t_d] / [t_u - t_d] * R$$

$$B = [8+4] / [8-4] * 16$$

$$B = 48 \text{ km/hr}$$

- There are 3 points A, B and C in a straight line such that point B is equidistant from points A and C. A boat can travel from point A to C downstream in 12 hours and from B to A upstream in 8 hours. Find the ratio of boat in still water to speed of stream.

A) 9 : 2

B) 8 : 3

C) 7 : 1

D) 4 : 1

E) 7 : 3

**View Answer**

**Option C****Solution:**

Let speed in still water =  $x$  km/hr, of current =  $y$  km/hr

Downstream speed =  $(x+y)$  km/hr

Upstream speed =  $(x-y)$  km/hr

Let AC =  $2p$  km. So AB = BC =  $p$  km.

So

$$2p/(x+y) = 12$$

And

$$p/(x-y) = 8$$

Divide both equations, and solve

$$x/y = 7/1$$

A boat can row 18 km downstream and back in 8 hours. If the speed of boat is increased to twice its previous speed, it can row same distance downstream and back in 3.2 hours. Find the speed of boat in still water.

- A) 9 km/hr  
B) 5 km/hr  
C) 4 km/hr  
D) 8 km/hr  
E) 6 km/hr

**View Answer**

**Option E****Solution:**

Let speed of boat =  $x$  km/hr and that of stream =  $y$  km/hr

So

$$18/(x+y) + 18/(x-y) = 8$$

when speed of boat becomes  $2x$  km/hr:

$$18/(2x+y) + 18/(2x-y) = 3.2$$

Solve,  $x = 6$  km/hr

1.  A boat can cover 25 km upstream and 42 km downstream together in 7 hours. Also it can cover 30 km upstream and 63 km downstream together in 9 hours. What is the speed of the boat in still water?

A) 13 km/hr

B) 8 km/hr

C) 7 km/hr

D) 11 km/hr

E) 16 km/hr

**View Answer**

**Option A****Solution:**

Upstream speed in both cases is 25 and 30 resp. Ratio is  $25 : 30 = 5 : 6$ . So let times in both cases be  $5x$  and  $6x$

Downstream speed in both cases is 42 and 63 resp. Ratio is  $42 : 63 = 2 : 3$ . So let times in both cases be  $2y$  and  $3y$

So  $5x + 2y = 7$

and  $6x + 3y = 9$

Solve both,  $x = 1, y = 1$

So upstream speed is  $= 25/5x = 5$  km/hr

And downstream =  $42/2y = 21$  km/hr  
So speed of boat is  $1/2 * (5+21)$

2. A man rows to a certain place and comes back, but by mistake he covers 1/3rd more distance while coming back. The total time for this journey is 10 hours. The ratio of speed of boat to that of stream is 2 : 1. If the difference between upstream and downstream speed is 12km/hr, then how much time will the man take to reach to starting point from his present position?  
 A) 35 minutes  
 B) 45 minutes  
 C) 60 minutes  
 D) 40 minutes  
 E) 55 minutes

#### **View Answer**

#### **Option D**

#### **Solution:**

Speed of boat and stream –  $2x$  and  $x$  respectively. So downstream speed =  $2x+x$  =  $3x$ , and upstream speed =  $2x-x = x$   
Let total distance between points is  $d$  km  
So he covered  $d$  km downstream, and while coming back i.e. upstream he covers  $d + 1/3 * d = 4d/3$  km

Total time for this journey is 10 hrs. So  $d/3x + (4d/3)/x = 10$

Solve,  $d = 6x$

Now also given, that  $(2x+x) - (2x-x) = 12$

Solve,  $x = 6$

So  $d = 36$  km

So to come to original point, he will have to cover  $1/3 * 36 = 12$  km

And with speed  $3x = 18$  km/hr(downstream)

So time is  $12/18 * 60 = 40$  minutes

3. A man can row at a speed of 15 km/hr in still water to a certain upstream point and back to the starting point in a river which flows at 9 km/hr. Find his average speed for total journey.  
 A) 10.4 km/hr  
 B) 8.4 km/hr  
 C) 9.1 km/hr  
 D) 5.2 km/hr

E) 9.6 km/hr

#### **View Answer**

#### **Option E**

#### **Solution:**

When the distance is same, then average speed throughout journey would be:  
Speed downstream \* Speed upstream/speed in still water.  
So here average speed =  $(15+9)*(15-9)/15 = 9.6$  km/hr

4. A boat takes 5 hours for travelling downstream from point A to point B and coming back to point C at 3/4th of total distance between A and B from point B. If the velocity of the stream is 3 kmph and the speed of the boat in still water is 9 kmph, what is the distance between A and B?  
 A) 24 km  
 B) 32 km  
 C) 27 km  
 D) 21 km  
 E) 34 km

#### **View Answer**

#### **Option A**

#### **Solution:**

Let total distance from A to B=  $d$  km, So  $CB = 3d/4$  km  
So  $d/(9+3) + (3d/4)/(9-3) = 5$   
Solve,  $d = 24$  km

5. At its usual rowing rate, a boat can travel 18 km downstream in 4 hours less than it takes to travel the same distance upstream. But if he the usual rowing rate for his 28-km round trip was 2/3rd, the downstream 14 km would then take 12 hours less than the upstream 14 km. What is the speed of the current?  
 A) 1.5 km/h  
 B) 3 km/h  
 C) 2 km/h  
 D) 3.5 km/h  
 E) 4 km/h

[View Answer](#)**Option B****Solution:**

Let speed of boat =  $x$  km/hr, and of current =  $y$  km/hr

So

$$18/(x-y) = 18/(x+y) + 4$$

$$\text{Gives } x^2 = 9y + y^2 \dots\dots\dots(1)$$

Now when speed of boat is  $2x/3$

$$14/(2x/3 - y) = 14/(2x/3 + y) + 12$$

$$42/(2x-3y) = 42/(2x+3y) + 12$$

$$\text{Gives } 4x^2 = 21y + 9y^2 \dots\dots\dots(2)$$

From (1), put value of  $x^2$  in (2) and solve

Solving,  $x = 6$ ,  $y = 3$

6. A boat can row to a place 120 km away and come back in 25 hours. The time to row 24 km with the stream is same as the time to row 16 km against the stream. Find the speed of current.
- A) 1.5 km/h
  - B) 3 km/h
  - C) 2 km/h
  - D) 3.5 km/h
  - E) 4 km/h

[View Answer](#)**Option C****Solution:**

Downstream speed =  $24/x$  km/hr

Upstream speed =  $16/x$  km/hr

$$120/(24/x) + 120/(16/x) = 25$$

Solve,  $x = 2$  km/hr

So, downstream speed = 12 km/hr,  
upstream speed = 8 km/hr

Speed of current =  $1/2 * (12 - 8)$  km/hr

7. A boatman can row 4 Km against the stream in 20 minutes and return in 24 minutes. Find the speed of boatman in still water.
- A) 10 km/hr
  - B) 8 km/hr
  - C) 15 km/hr
  - D) 12 km/hr
  - E) 11 km/hr

[View Answer](#)**Option E****Solution:**

Upstream speed =  $4/20 * 60 = 12$  km/hr

Downstream speed =  $4/24 * 60 = 10$  km/hr

Speed of boatman =  $1/2 (12+10) = 11$  km/hr

8. A man can row a certain distance downstream in 3 hours and return the same distance in 9 hours. If the speed of current is 18 km/hr, find the speed of man in still water.
- A) 47 km/hr
  - B) 48 km/hr
  - C) 42 km/hr
  - D) 50 km/hr
  - E) 36 km/hr

[View Answer](#)**Option E****Solution:**

Use formula:

$$B = [t_u + t_d] / [t_u - t_d] * R$$

$$B = [9+3] / [9-3] * 18$$

$$B = 36 \text{ km/hr}$$

9. Four times the downstream speed is 8 more than 15 times the upstream speed. If difference between downstream and upstream speed is 24 km/hr, then what is the ratio of speed in still water to the speed of the current?
- A) 9 : 2
  - B) 5 : 3
  - C) 7 : 1
  - D) 4 : 1
  - E) 7 : 3

[View Answer](#)**Option B****Solution:**

Let speed in still water =  $x$  km/hr, of current =  $y$  km/hr

So

$$4(x+y) = 15(x-y) + 8$$

$$\text{Solve, } 11x - 19y + 8 = 0 \dots\dots\dots(1)$$

$$\text{Also } (x+y) - (x-y) = 24$$

$$\text{So } y = 12$$

Put in (1).  $x = 20$   
So  $x/y = 20/12 = 5/3$

10. A boat can cover 14 km upstream and 21 km downstream together in 3 hours. Also it can cover 21 km upstream and 42 km downstream together in 5 hours. What is the speed of current?
- 13 km/hr
  - 8 km/hr
  - 7 km/hr
  - 11 km/hr
  - 16 km/hr

#### **View Answer**

#### **Option C**

#### **Solution:**

Upstream speed in both cases is 14 and 21 resp. Ratio is  $14 : 21 = 2 : 3$ . So let times in both cases be  $2x$  and  $3x$

Downstream speed in both cases is 21 and 42 resp. Ratio is  $21 : 42 = 1 : 2$ . So let times in both cases be  $y$  and  $2y$

$$\text{So } 2x + y = 3$$

$$\text{and } 3x + 2y = 5$$

$$\text{Solve both, } x = 1, y = 1$$

$$\text{So upstream speed is } = 14/2x = 7 \text{ km/hr}$$

$$\text{And downstream} = 21/y = 21 \text{ km/hr}$$

$$\text{So speed of current is } 1/2 * (21-7)$$



The sp

10km/h

A to B in certain time. After reaching B the Boat is powered by Engine then Boat started to return from Point B to A. The time taken for Forward journey and Backward journey are same. Then what is the speed of the stream?

- 2 Km/hr
- 3 Km/hr
- 4 Km/hr
- 5 Km/hr
- Cannot be determined

#### **Answer & Explanation**

Answer – 5. Cannot be determined

#### **Explanation :**

$$S+R = D/t ; S-R+x = D/t$$

$$S+R = S-R+x \\ R = x/2$$

- A Boat going upstream takes 8 hours 24 minutes to cover a certain distance, while it takes 5 hours to cover  $5/7$  of the same distance running downstream. Then what is the ratio of the speed of boat to speed of water current?

- 6:5
- 11:5
- 11:6
- 11:1
- 11:10

#### **Answer & Explanation**

Answer – 4. 11:1

#### **Explanation :**

$$(S-R)*42/5 = (S+R)*7$$

$$S:R = 11:1$$

- A Boat takes total 16 hours for traveling downstream from point A to point B and coming back point C which is somewhere between A and B. If the speed of the Boat in Still water is 9 Km/hr and rate of stream is 6 Km/hr, then what is the distance between A and C?

- 30 Km
- 60 Km
- 90 Km
- 100 Km
- Cannot be determined

#### **Answer & Explanation**

Answer – 5. Cannot be determined

#### **Explanation :**

$$16 = D/9+6 + x/9-6$$

- A Boat takes 128 min less to travel to 48 Km downstream than to travel the same distance upstream. If the speed of the stream is 3 Km/hr. Then Speed of Boat in still water is?

- 6 Km/hr
- 9 Km/hr
- 12 Km/hr
- 15 Km/hr
- None

#### **Answer & Explanation**

Answer – 3. 12 Km/hr

#### **Explanation :**

$$32/15 = 48(1/s-3 - 1/s+3)$$

$$s = 12$$

The speed of Boat in Still water is 40 Km/hr and speed of the stream is 20 Km/hr. The distance between Point A and Point B is 480 Km. The boat started traveling downstream from A to B, in the midway, it is powered by an Engine due to which speed of the Boat increased. Now Boat reached Point B and started back to point A with help of the same engine. It took 19 hours for the entire journey. Then with the help of the engine, the speed of the boat increased by how many Km/hr?

1. 10 Km/hr
2. 15 Km/hr
3. 20 Km/hr
4. 24 Km/hr
5. Cannot be determined

#### Answer & Explanation

Answer – 3. 20 Km/hr

Explanation :

$$19 = \frac{240}{60} + \frac{240}{60+x} + \frac{480}{20+x}$$

$$x = 20$$

A Boat covers upstream in 12 Hours 48 minutes to travel distance from Point A to B, while it takes 6 hours to cover 3/4th of the same distance running downstream. The speed of the current is 15 Km/hr. The boat covered both forward distance from A to B and back what is

1. 360 Km
2. 480 Km
3. 540 Km
4. 640 Km
5. Cannot be determined

#### Answer & Explanation

Answer – 4. 640 Km

Explanation :

$$(S+R)*8 = (S-R)*64/5$$

$$S:R = 13:3$$

$$R = 15 \quad S = 65$$

$$D = (65+15) * 8 = 640$$

A Boat takes total 10 hours for traveling downstream from point A to point B and coming back point C which is somewhere between A and B. The speed of the Boat in

Still water is 9 Km/hr and rate of Stream is 3 Km/hr, then what is the distance between A and B if the ratio of distance between A to C and distance between B to C is 2:1?

1. 54 Km
2. 66 Km
3. 72 Km
4. 84 Km
5. Cannot be determined

#### Answer & Explanation

Answer – 3. 72 Km

Explanation :

$$10 = D/12 + D/18$$

$$D = 72$$

A Ship of Length 300m traveling from point A to B downstream passes a Ghat along the river in 18 sec, while in return it passes the same Ghat in 24 sec. If the rate of current is 9 Km/hr. Then what is the length of the Ghat?

1. 50 m
2. 60 m
3. 80 m
4. 100 m
5. Cannot be determined

#### Answer & Explanation

Answer – 2. 60 m

Explanation :

$$(S+9)*18 = (S-9)*24$$

$$S = 63$$

$$300+x = 72*5/18*18$$

$$x = 60$$

Speeds of Boat A and B in still water are in the ratio of 3:2 Rate of current is 10 Km/hr. Both Boats started from Point P to point Q downstream at the same time. After Boat B reaching Point Q, in return journey, it is powered by engine due to which the speed of the boat in still water is increased by 70%, while retuned Boat A returned to Point Q as usual. Both the boats returned back to point P at the same time. Then what is the speed of Boat A?

1. 20 Km/hr
2. 30 Km/hr
3. 40 Km/hr
4. 50 Km/hr
5. Cannot be determined

#### Answer & Explanation

**Answer – 2. 30 Km/hr**

**Explanation :**

$$S_1 / S_2 = 3/2$$

$$R = 10$$

then

$$(1/3x+10) + (1/3x-10) = (1/2x+10) + (1/3.4x-10)$$

$$x = 10$$

$$\text{Speed of boat A} = 3*10 = 30$$

**A Boat took 8 hours less to travel a distance downstream than to travel the same distance upstream. If the speed of a boat in still water is 9 Km/hr and speed of a stream is 3 Km/hr. In total how much distance traveled by boat?**

1. 96 Km

2. 144 Km

3. 164 Km

4. 192 Km

5. 216 Km

**Answer & Explanation**

**Answer – 4. 192 Km**

**Explanation :**

$$8 = D(1/6 - 1/12)$$

$$D = 96$$

$$\text{Total} = 96+96 = 192$$

**If Nishu can swim downstream at 6kmph and upstream at 2kmph.What is his speed in still water ?**

- A.5 km/hr

- B.4 km

- C.8km

- D.7km

**Answer**

**Answer- B**

**Basic Formula:**

If the speed downstream is a km/ hr and the speed upstream is b km/ hr  
then Speed in still water is  $\frac{1}{2} (a+b)$  km / hr  
[memory tool last 2 L cross and make  
+] **Explanation:**

Given : speed downstream a = 6 km ph  
Speed upstream b = 2kmph  
Speed in still water =  $\frac{1}{2} (a+b)$  kmph  
 $= \frac{1}{2} (6+2)$   
 $= 8/2 = 4$ kmph  
speed in still water = 4kmph

**Ashok can row upstream at 8kmph and downstream at 12kmph.What is the speed of the stream ?**

- A.6km/hr

- B.3km/h

- C.2 km/hr

- D.4km/hr

**Answer**

**Answer -C**

**Basic Formula:**

If the speed downstream is a kmph and the speed upstream is b kmph

then

$$\text{Speed of the stream} = \frac{1}{2} (a-b) \text{ kmph}$$

**Explanation:**

$$\text{Speed downstream } a = 12 \text{ kmph}$$

$$\text{Speed upstream } b = 8 \text{ kmph}$$

$$\text{Speed of the stream} = \frac{1}{2} (a-b) = \frac{1}{2} (12-8)$$

$$= 4/2 = 2 \text{ kmph}$$

$$\text{speed of the stream} = 2 \text{ kmph}$$

**A man rows 750m in 775 seconds against the stream and returns in 7 1/2 minutes. What is rowing speed in still water ?**

- A.4.7km/hr

- B. 4km/hr

- C.3.5km/hr

- D.6km/hr

**Answer**

**Answer-A**

**Basic Formula:**

i) Speed in still water =  $\frac{1}{2} (a+b)$  kmph where 'a' is speed downstream and 'b' is speed upstream

ii) a km / hr = a  $\times$  5/18 m / s

iii) a m/sec = a  $\times$  18/5 km/hr

**Explanation:**

$$\text{Speed upstream 'b'} = 750 \text{m} / 775 \text{ sec} = 30/31 \text{ m/sec}$$

$$\text{Speed downstream 'a'} = 750 \text{ m} / (15/2) \text{ minutes} [1 \text{ min}=60 \text{ sec}] a = 750 \text{m}/450 \text{ sec} = 5/3 \text{ m/sec}$$

$$\text{speed in still water} = \frac{1}{2} (a+b)$$

$$= \frac{1}{2} (750/450 + 750/675) \text{ m /sec}$$

$$= \frac{1}{2} (750/450 + 750/675) \times 18/5 \text{ km/hr}$$

$$= \frac{1}{2} (5/3 + 30/31) \times 18/5 \text{ km/hr}$$

$$= 4.7 \text{ km/hr}$$

**A man can row 9 (1/3) kmph in still water and finds that it takes him thrice as much time to row up than as to row**

**down the same distance in the river. What is speed of the current ?**

- A. 5km/hr
- B.3(1/2) km/hr
- C.4 (2/3) km/hr
- D.8 (3/2)km/hr

**Answer**

**Answer- C**

**Basic Formula:**

$$\text{Speed of current} = \frac{1}{2} (a-b) \text{ km/hr}$$

**Explanation:**

Let man's rate upstream be  $x$  km/hr. Then his rate downstream is  $3x$  km/hr

Given:

$$\text{Speed in still water} = 9 \left(\frac{1}{3}\right) = 28/3 \text{ km/hr}$$

$$\text{i.e., } \frac{1}{2} (a+b) = 28/3 \text{ km/hr}$$

$$\frac{1}{2} (x+3x) = 28/3$$

$$2x = 28/3 \quad x = 28/2 \times 3 = 14/3 \text{ km/hr}$$

rate upstream  $b = 14/3$  km/hr and

rate downstream  $a = 14/3 \times 3 = 14$  km/hr

speed of the current  $= \frac{1}{2} (a-b) = \frac{1}{2} (14 - 14/3)$

$$= \frac{1}{2} (42-14/3) = 28/6 = 4 (2/3) \text{ km/hr}$$

**Sham can row a boat at 10kmph in still water. IF the speed of the stream is 6kmph, the time taken to row a distance of 80km down the stream**

is

- A.4 hours
- B.5hours
- C.3 hours
- D.2 hours

**Answer**

**Answer- B**

**Basic Formula:**

$$\text{Speed of stream} = \frac{1}{2} (a-b) \text{ km/hr}$$

$$\text{Speed in still water} = \frac{1}{2} (a+b) \text{ km/hr}$$

**Explanation:**

Given:

$$\text{Speed in still water, } \frac{1}{2} (a+b) = 10 \text{ km/hr}$$

$$a+b = 20 \text{ km/hr} \dots \dots \dots (1)$$

$$\text{speed of the stream, } \frac{1}{2} (a-b) = 6 \text{ km/hr}$$

$$a-b = 12 \text{ km/hr} \dots \dots \dots (2)$$

$$(1)+(2) \text{ we get } 2a = 32$$

$$a = 16 \text{ km/hr}$$

speed downstream = distance traveled / time taken

$$\text{time taken} = 80/16 = 5 \text{ hours}$$

**A boat takes 4hours for traveling downstream from point P to point**

**Q and coming back to point P upstream. If the velocity of the stream is 2km ph and the speed of the boat in still water is 4kmph, what is the distance between P and Q?**

- A.9 km
- B.7 km
- C.5 km
- D.6km

**Answer**

**Answer- D**

**Basic Formula:**

$$\text{Speed of stream} = \frac{1}{2} (a-b) \text{ km/hr}$$

$$\text{Speed of still water} = \frac{1}{2} (a+b) \text{ km/hr}$$

**Explanation:**

Time taken by boat to travel upstream and downstream = 4 hours

$$\text{Velocity of the stream, } \frac{1}{2} (a-b) = 2 \text{ km/hr}$$

$$a-b = 4 \text{ km/hr} \dots \dots \dots (1)$$

$$\text{velocity of the boat in still water} = \frac{1}{2} (a+b) = 4 \text{ km/hr}$$

$$a+b = 8 \text{ km/hr} \dots \dots \dots (2)$$

$$1+2 \text{ we get } a = 6 \text{ km/hr}, b = 2 \text{ km/hr}$$

let the distance between A and B be  $x$  km

$$x/2 + x/6 = 4$$

$$3x + x/6 = 4 \quad 4x = 24 \text{ so, } x = 6$$

distance between P and Q = 6km

**Speed of a boat in standing water is 9kmph and the speed of the stream is 1.5kmph. A man rows to a place at a distance of 10.5 km and comes back to the starting point. Find the total time taken by him.**

- A.24 hours
- B.16 hours
- C.20 hours
- D.15 hours

**Answer**

**Answer- A**

**Basic Formula:**

$$\text{i. speed} = \text{distance traveled} / \text{time taken}$$

$$\text{ii. speed of the stream} = \frac{1}{2} (a-b) \text{ km/hr}$$

$$\text{iii. speed in still water} = \frac{1}{2} (a+b) \text{ km/hr}$$

**Explanation:**

$$\text{Speed in still water} = \frac{1}{2} (a+b) = 9 \text{ km ph}$$

$$= a+b = 18 \dots \dots \dots 1$$

$$\text{speed of the stream} = \frac{1}{2} (a-b) = 1.5 \text{ kmph}$$

$$= a-b = 3 \text{ kmph} \dots \dots \dots 2$$

$$\text{solving 1 and 2 gives } a = 10.5 \text{ km/hr ; } b = 7.5 \text{ kmphr}$$



**Answer – B.120 km**

**Explanation :**

$$\text{Downstream speed} = 9+6 = 15$$

$$\text{Upstream speed} = 9-6 = 3$$

Now total time is 28 hours

If distance between A and B is d, then distance

$$BC = d/2$$

Now distance/speed = time, so

$$d/15 + (d/2)/3 = 28$$

$$\text{Solve, } d = 120 \text{ km}$$

**Speed of a man in still water is 5 km/hr and the river is running at 3km/hr. The total time taken to go to a place and come back is 10 hours. What is the distance travelled?**

A.10 km

B.16 km

C.24 km

D.32 km

E.36 km

**Answer & Explanation**

Answer – D.32 km

**Explanation :**

$$\text{Down speed} = 5+3 = 8$$

$$\text{Up speed} = 5-3 = 2$$

Let distance travelled = X

$$(X/8) + (X/2) = 10$$

$$X = 16 \text{ km}$$

Total distance is  $16+16=32$

**A boat running upstream takes 9 hours 48 minutes to cover a certain distance, while it takes 7 hours to cover the same distance downstream. What is the ratio of the speed of the boat and speed of the water current respectively?**

A.5:2

B.7:4

C.6:1

D.8:3

E.2:5

**Answer & Explanation**

Answer – C.6:1

**Explanation :**

Distance covered upstream in 9hrs 48 min =

Distance covered downstream in 7hrs

$$(X-Y) 49/5 = (X+Y) 7$$

$$X/Y = 1/6$$

**A boat can travel 20 km downstream in 24 min. The ratio of the speed of the boat in still**

**water to the speed of the stream is 4 : 1. How much time will the boat take to cover 15 km upstream?**

A.20 min

B.22 min

C.25 min

D.30 min

E.35 min

**Answer & Explanation**

Answer – D.30 min

**Explanation :**

$$\text{Down speed} = 20/24 * 60 = 50 \text{ km/hr}$$

$$4:1 = 4x:x$$

$$\text{Downstream speed} = 4x+x=5x$$

$$\text{Upstream speed} = 4x-x=3x$$

$$5x = 50; x = 10$$

$$\text{so up speed } 3*10=30$$

$$\text{Time} = 15/30 * 60 = 30 \text{ min.}$$

**A boat whose speed in 20 km/hr in still water goes 40 km downstream and comes back in a total of 5 hours. The approx. speed of the stream (in km/hr) is:**

A.6 km/hr

B.9 km/hr

C.12 km/hr

D.16 km/hr

E.18 km/hr

**Answer & Explanation**

Answer – B.9 km/hr

**Explanation :**

Let the speed of the stream be x km/hr. Then,

$$\text{Speed downstream} = (20+x) \text{ km/hr,}$$

$$\text{Speed upstream} = (20-x) \text{ km/hr.}$$

$$40/20+x + 40/20-x = 5$$

$$X = 9 \text{ approx}$$

**A boat covers a certain distance downstream in 2 hour, while it comes back in 2 1/2 hours. If the speed of the stream be 5 kmph, what is the speed of the boat in still water?**

A.40 kmph

B.30 kmph

C.35 kmph

D.45 kmph

E.None of these

**Answer & Explanation**

Answer – D.45 kmph

**Explanation :**

Let the speed of the boat in still water

be  $x$  kmph. Then,

$$\text{Speed downstream} = (x + 5) \text{ kmph},$$

$$\text{Speed upstream} = (x - 5) \text{ kmph}.$$

$$(x + 5)*2 = (x - 5)*5/2$$

$$X = 45 \text{ kmph}$$

A boat running downstream covers a distance of 40 km in 5 hrs and for covering the same distance upstream it takes 10 hrs. What is the speed of the stream?

A.5 km/hr

B.2 km/hr

C.6 km/hr

D.4 km/hr

E.3 km/hr

#### Answer & Explanation

Answer – B.2 km/hr

Explanation :

$$\text{Downstream speed} = 40/5 = 8 \text{ km/hr}$$

$$\text{Upstream speed} = 40/10 = 4 \text{ km/hr}$$

$$\text{So speed of stream} = 1/2*(8-4)$$

A boat goes 4 km against the current of the stream in 1 hour and goes 1 km along the current in 10 minutes. How long will it take to go 15 km in stationary water?

A.2 hour 15 min

B.2 hour

C.3hr

D.3hr 30 min

E.None of these

#### Answer & Explanation

Answer – C.3hr

Explanation :

$$\text{Rate downstream} = 1/10 * 60 = 6 \text{ kmph}$$

$$\text{Rate upstream} = 4 \text{ km/hr.}$$

$$\text{Speed in still water} = 1/2 * 10 = 5 \text{ kmph}$$

$$\text{Required time} = 15/5 = 3 \text{ hr}$$

A man rows to a place 40 km distant and come back in 9 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. The rate of the stream is:

A.1 km/hr

B.1.5 km/hr

C.2 km/hr

D.2.5 km/hr

E.None of these

#### Answer & Explanation

Answer – A.1 km/hr

Explanation :

$$\text{Speed downstream} = 5/x$$

$$\text{Speed upstream} = 4/x$$

$$40/(5/x) + 40/(4/x) = 9$$

$$X = 1/2$$

So, Speed downstream = 10 km/hr, Speed upstream = 8 km/hr.

$$\text{Rate of the stream} = 1/2 * 2 = 1 \text{ kmph}$$

A man can row 8 km/hr in still water.

When the river is running at 4 km/hr, it takes him  $2\frac{1}{3}$  hr to row to a place and come back. How far is the place?

A.4 km

B.5 km

C.7 km

D.10 km

E.None of these

#### Answer & Explanation

Answer – C.7 km

Explanation :

$$\text{Downstream speed} = 8+4= 12 \Rightarrow a$$

$$\text{Upstream speed} = 8-4= 4 \Rightarrow b$$

$$\text{Distance} = a*b/(a+b) * \text{total time (t)}$$

$$= 12*4/16 * 7/3$$

$$= 7 \text{ kms}$$

A boat can travel 15 km downstream in 18 min. The ratio of the speed of the boat in still water to the speed of the stream is 4 : 1. How much time will the boat take to cover 10 km upstream?

A) 22 min

B) 25 min

C) 20 min

D) 33 min

E) 30 min

#### Answer & Explanation

C) 20 min

Explanation:

Use:

$$B = [t_u + t_d] / [t_u - t_d] * R$$

15 km downstream in 18 min so 10 km in

$$(18/15)*10 = 12 \text{ min}$$

$$B= 4x, R = x$$

Now

$$4x = [t_u + 12] / [t_u - 12] * x$$

$$\text{Solve, } t_u = 20 \text{ min}$$

Speed of a man in still water is 4 km/hr and the river is running at 2 km/hr. The total time taken to go to a place and come back is 4 hours. What is the distance travelled?

- A) 16 km
- B) 13 km
- C) 10 km
- D) 6 km
- E) 8 km

#### Answer & Explanation

D) 6 km

**Explanation:**

Use

$$\text{Distance} = \text{time} * [B^2 - R^2] / 2*B$$

$$\text{Distance} = 4 * [4^2 - 2^2] / 2 * 4$$

A boat takes 25 hours for travelling downstream from point A to point B and coming back to point C midway between A and B. If the velocity of the stream is 5 km/hr and the speed of the boat in still water is 10 km/hr, what is the distance between A and B?

- A) 100 km
- B) 122 km
- C) 146 km
- D) 178 km
- E) 150 km

#### Answer & Explanation

E) 150 km

**Explanation:**

$$\text{Downstream speed} = 10+5 = 15$$

$$\text{Upstream speed} = 10-5 = 5$$

Now total time is 25 hours

If distance between A and B is d, then distance

$$BC = d/2$$

Now distance/speed = time, so

$$d/15 + (d/2)/5 = 25$$

$$\text{Solve, } d = 150 \text{ km}$$

A boat goes 6 km against the current of the stream in 2 hours and goes 8 km along the current in half hour. How long will it take to go 28.5 km in stationary water?

- A) 4 1/2 hours
- B) 3 hours
- C) 3 1/2 hours
- D) 4 hours
- E) None of these

#### Answer & Explanation

B) 3 hours

**Explanation:**

$$\text{Speed upstream} = 6/2 = 3, \text{ speed downstream} = 8/(1/2) = 16$$

$$\text{Speed of boat} = 1/2(3+16) = 9.5 \text{ km/hr}$$

$$\text{So time in still water} = 28.5/9.5$$

A man can row 48 km upstream and 56 km downstream in 12 hrs. Also, he can row 54 km upstream and 70 km downstream in 14 hrs. What is the speed of man in still water?

- A) 4 km/hr
- B) 10 km/hr
- C) 12 km/hr
- D) 15 km/hr
- E) 18 km/hr

#### Answer & Explanation

B) 10 km/hr

**Explanation:**

$$\text{Let upstream speed} = x \text{ km/hr, downstream speed} = y \text{ km/hr}$$

$$48/x + 56/y = 12$$

$$54/x + 70/y = 14$$

$$\text{Put } 1/x = u, 1/y = v$$

$$\text{So equations are } 48u + 56v = 12 \text{ and } 54u + 70v = 14$$

$$\text{Solve the equations, } u = 1/6, v = 1/14$$

$$\text{So upstream speed} = 6 \text{ km/hr, downstream speed} = 14 \text{ km/hr}$$

$$\text{Speed of boat in still water} = 1/2*(6+14)$$

A boat takes 150 min less to travel 40 km downstream than to travel the same distance upstream. The speed of the stream is 4 km/hr. What is the downstream speed?

- A) 16 km/hr
- B) 12 km/hr
- C) 10 km/hr
- D) 8 km/hr
- E) None of these

#### Answer & Explanation

A) 16 km/hr

**Explanation:**

$$\text{Let speed of boat in still water} = x \text{ km/hr}$$

$$\text{So speed upstream} = x-4, \text{ and speed downstream} = x+4$$

Now given:

$$\text{Time to travel 40 km downstream} = \text{time to travel 40 km upstream} - 150/60$$

$$40/(x+4) = 40/(x-4) - 5/2$$

$$8/(x-4) - 8/(x+4) = 1/2$$

$$x+4 - (x-4)/(x^2 - 16) = 1/16$$

solve,  $x = 12$

so downstream speed =  $12+4$

- A man rows to a place 40 km distant and back in a total of 18 hours. He finds that he can row 5 km with the stream in the same time as 4 km against the stream. What is the speed of boat in still water?

- A) 4.5 km/hr
- B) 8 km/hr
- C) 5.5 km/hr
- D) 2 km/hr
- E) None of these

#### Answer & Explanation

A) 4.5 km/hr

#### Explanation:

Suppose he moves 5km downstream in  $x$  hours

Then, downstream speed  $a = 5/x$  km/hr

Speed upstream speed  $b = 4/x$  km/hr

$$40 / (5/x) + 40 / (4/x) = 18$$

$$8x + 10x = 18$$

$$x = 1$$

$$a = 5 \text{ km/hr}, b = 4 \text{ km/hr}$$

$$\text{speed of boat} = \frac{1}{2}(5+4) = 9/2 \text{ km/hr}$$

- In a stream running at 2 km/hr, a motorboat goes 6 km upstream and back again to the starting point in 2 hours. Find the speed of boat in still water.

- A) 9 km/hr
- B) 12 km/hr
- C) 8 km/hr
- D) 10 km/hr
- E) None of these

#### Answer & Explanation

C) 8 km/hr

#### Explanation:

$$\text{Distance} = \text{time} * [B^2 - R^2] / 2*B$$

$$6 = 2 * [B^2 - 2^2] / 2*B$$

$$B^2 - 6B - 16 = 0$$

$$(B-8)(B+2) = 0$$

$$\text{So } B = 8$$

- It takes five times as long to row a distance against the stream as to row the same distance in favor of the stream. What is the ratio of the speed of the boat in still water to that of stream?

- A) 7 : 4
- B) 2 : 3

C) 9 : 5

D) 3 : 2

E) 5 : 2

#### Answer & Explanation

D) 3 : 2

#### Explanation:

Use:

$$B = [t_u + t_d] / [t_u - t_d] * R$$

So

$$B = [5x + x] / [5x - x] * R$$

$$\text{So } B/R = 6/4 = 3/2$$

- A boat running downstream covers a distance of 32 km in 4 hrs and for covering the same distance upstream it takes 8 hrs. What is the speed of the stream?

- A) 5 km/hr
- B) 2 km/hr
- C) 6 km/hr
- D) 4 km/hr
- E) 3 km/hr

#### Answer & Explanation

B) 2 km/hr

#### Explanation:

$$\text{Downstream speed} = 32/4 = 8 \text{ km/hr}$$

$$\text{Upstream speed} = 32/8 = 4 \text{ km/hr}$$

$$\text{So speed of stream} = 1/2 * (8-4)$$

- A man can row upstream at 10 km/hr and downstream at 16 km/hr. Find the man's rate in still water and the rate of current.

- A. 13 km/hr, 3 km/hr
- B. 10 km/hr, 2 km/hr
- C. 3 km/hr, 13 km/hr
- D. 15 km/hr, 5 km/hr

#### Answer

A. 13 km/hr, 3 km/hr

#### Explanation:

$$\text{man's rate in still water} = 1/2(16+10)$$

$$\text{man's rate in still water} = 1/2(16-10)$$

- A boat can row at 16 km/hr in still water and the speed of river is 10 km/hr. Find the speed of boat with the river and speed of boat against the river.

- A. 13 km/hr, 3 km/hr
- B. 15 km/hr, 5 km/hr
- C. 26 km/hr, 6 km/hr
- D. 6 km/hr, 26 km/hr

#### Answer

C. 26 km/hr, 6 km/hr

Explanation:

Speed with the river (downstream) =  $16+10$

Speed against the river (upstream) =  $16-10$

A man goes downstream 60 km and upstream 20 km, taking 4 hrs each. What is the velocity of current?

- A. 4 km/hr
- B. 8 km/hr
- C. 6 km/hr
- D. 5 km/hr

Answer

D. 5 km/hr

Explanation:

Downstream speed =  $60/4 = 15$  km/hr

Upstream speed =  $20/4 = 5$  km/hr

Velocity of stream =  $(15-5)/2 = 5$  km/hr

A man rows downstream 28 km and upstream 16 km, taking 5 hrs each time. What is the velocity of current?

- A. 4 km/hr
- B. 2.4 km/hr
- C. 1.2 km/hr
- D. 3 km/hr

Answer

C. 1.2 km/hr

A man can row 30 km upstream and 44 km downstream in 10 hrs. Also, he can row 40 km upstream and 55 km downstream in 13 hrs. Find

- A. 5 km
- B. 8 km
- C. 10 km/hr
- D. 12 km/hr

Answer

B. 8 km/hr

Explanation:

Let upstream speed =  $x$ , downstream speed =  $y$  km/hr

Then,  $30/x + 44/y = 10$  and  $40/x + 55/y = 13$

Put  $1/x = a$ ,  $1/y = b$

Solve the equations.

$A = 1/5$ ,  $b = 1/11$

So,  $x = 5$ ,  $y = 11$

Speed in still water =  $(5+11)/2 = 8$

A man can row 24 km upstream and 36 km downstream in 6 hrs. Also, he can row 36

km upstream and 24 km downstream in 6.5 hrs. Find the speed of the current.

- A. 2 km/hr
- B. 8 km/hr
- C. 10 km/hr
- D. 12 km/hr

Answer

A. 2 km/hr

A man can row 6 km/hr in still water. When the river is running at 2 km/hr, it takes him  $1\frac{1}{2}$  hr to row to a place and come back. How far is the place?

- A. 2.5 km
- B. 4 km
- C. 5 km
- D. 10 km

Answer

B. 4 km

Explanation:

$B$  is speed of boat in still water,  $R$  is speed of stream

Time is total time taken for upstream and downstream

$$\text{Distance} = \text{time} * [B^2 - R^2] / 2*B \\ = 3/2 * [6^2 - 2^2] / 2*6$$

In a stream running at 2 km/hr, a motorboat goes 10 km upstream and back again to the starting point in 55 minutes. Find the speed (km/hr) of the motorboat in still water.

- A. 17
- B. 20
- C. 22
- D. 25

Answer

C. 22

Explanation:

$$\text{Distance} = \text{time} * [B^2 - R^2] / 2*B \\ 10 = 55/60 * [B^2 - 2^2] / 2*B$$

A man can row a certain distance downstream in 2 hours and return the same distance in 6 hours. If the speed of current is 22 km/hr, find the speed of man in still water.

- A. 44 km/hr
- B. 48 km/hr
- C. 50 km/hr
- D. 55 km/hr

Answer

A. 44km/hr

Explanation:

Use:

$$B = [t_u + t_d] / [t_u - t_d] * R$$

$$B = [6+2] / [6-2] * 22$$

$$B = 44$$

- A man can row  $9 \frac{3}{5}$  km/hr in still water and he finds that it takes him twice as much time to row up than as to row down the same distance in river. The speed (km/hr) of the current is

A. 2

B.  $2 \frac{1}{2}$

C.  $3 \frac{1}{5}$

D. 5

Answer

C.  $3 \frac{1}{5}$

Explanation:

Let downstream time =  $t$ , then upstream time =  $2t$

$$B = [t_u + t_d] / [t_u - t_d] * R$$

$$48/5 = [2t+t] / [2t-t] * R$$

# PERMUTATION & COMBINATION QUESTIONS WITH SOLUTION

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**How many 3 digit number can be formed with the digits 5, 6, 2, 3, 7 and 9 which are divisible by 5 and none of its digit is repeated?**

- a) 12
- b) 16
- c) 20
- d) 24
- e) None of these

**Answer & Explanation**

Answer – c) 20

**Explanation :**

— 5

first two places can be filled in 5 and 4 ways respectively so, total number of 3 digit number =  
 $5*4*1 = 20$

**In how many different ways can the letter of the word ELEPHANT be arranged so that vowels always occur together?**

- a) 2060
- b) 2160
- c) 2260
- d) 2360
- e) None of these

**Answer & Explanation**

Answer – b) 2160

**Explanation :**

Vowels = E, E and A. They can be arranged in  $3!/2!$  Ways  
so total ways =  $6!*(3!/2!) = 2160$

**There are 4 bananas, 7 apples and 6 mangoes in a fruit basket. In how many ways can a person make a selection of fruits from the basket.**

- a) 269
- b) 280

- c) 279
- d) 256
- e) None of these

**Answer & Explanation**

Answer – c) 279

**Explanation :**

Zero or more bananas can be selected in  $4 + 1 = 5$  ways (0 orange, 1 orange, 2 orange, 3 orange and 4 orange)

similarly apples can be selected in  $7 + 1 = 8$  ways

and mangoes in  $6 + 1 = 7$  ways

so total number of ways =  $5 * 8 * 7 = 280$

but we included a case of 0 orange, 0 apple and 0 mangoes, so we have to subtract this, so  $280 - 1 = 279$  ways

**There are 15 points in a plane out of which 6 are collinear. Find the number of lines that can be formed from 15 points.**

- a) 105
- b) 90
- c) 91
- d) 95
- e) None of these

**Answer & Explanation**

Answer – c) 91

**Explanation :**

From 15 points number of lines formed =  $15c2$

6 points are collinear, number of lines formed by these =  $6c2$

So total lines =  $15c2 - 6c2 + 1 = 91$

**In how many ways 4 Indians, 5 Africans and 7 Japanese be seated in a row so that all person of same nationality sits together**

- a)  $4! 5! 7!$  3!

- b)  $4! 5! 7! 5!$
- c)  $4! 6! 7! 3!$
- d) can't be determined
- e) None of these

**Answer & Explanation**

Answer – a)  $4! 5! 7! 3!$

**Explanation :**

4 Indians can be seated together in  $4!$  Ways, similarly for Africans and Japanese in  $5!$  and  $7!$  respectively. So total ways =  $4! 5! 7! 3!$

**In how many ways 5 Americans and 5 Indians be seated along a circular table, so that they are seated in alternative positions**

- a)  $5! 5!$
- b)  $6! 4!$
- c)  $4! 5!$
- d)  $4! 4!$
- e) None of these

**Answer & Explanation**

Answer – c)  $4! 5!$

**Explanation :**

First Indians can be seated along the circular table in  $4!$  Ways and now Americans can be seated in  $5!$  Ways. So  $4! 5!$  Ways

**4 matches are to be played in a chess tournament. In how many ways can result be decided?**

- a) 27
- b) 9
- c) 81
- d) 243
- e) None of these

**Answer & Explanation**

Answer – c) 81

**Explanation :**

Every chess match can have three result i.e. win, loss and draw

so now of ways =  $3 \times 3 \times 3 \times 3 = 81$  ways

**Q8 – 9)** There are 6 players in a cricket which is to be sent to Australian tour. The total number of members is 12.

**If 2 particular member is always included**

- a) 210
- b) 270
- c) 310
- d) 420
- e) None of these

**Answer & Explanation**

Answer – a) 210

**Explanation :**

only 4 players to select, so it can be done in  $10C4 = 210$

**If 3 particular player is always excluded**

- a) 76
- b) 82
- c) 84
- d) 88
- e) None of these

**Answer & Explanation**

Answer – c) 84

**Explanation :**

6 players to be selected from remaining 9 players in  $9C6 = 84$  ways

**In a group of 6 boys and 5 girls, 5 students have to be selected. In how many ways it can be done so that at least 2 boys are included**

- a) 1524
  - b) 1526
  - c) 1540
  - d) 1560
  - e) None of these

## Answer & Explanation

**Answer – b) 1526**

### **Explanation :**

$$6c2*5c3 + 6c3*5c2 + 6c4*5c1 + 6c5$$

A card from a pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be both hearts. Find the Probability of the lost card being a heart?

- A. 12/50
  - B. 8/50
  - C. 11/50
  - D. 9/50
  - E. None of these

## Answer & Explanation

Answer – C, 11/50

### **Explanation :**

Total cards = 52

Drawn cards(Heart) = ?

$$\text{Present total cards} = \text{total cards} - \text{drawn cards} = 52 - 2 = 50$$

Remaining Card 13-2 = 11

Remaining Card 15  
Probability = 11/50

There are three boxes each containing 3 Pink and 5 Yellow balls and also there are 2 boxes each containing 4 Pink and 2 Yellow balls. A Yellow ball is selected at random. Find the probability that Yellow ball is from a box of the first group?

- A. 42/61
  - B. 45/61
  - C. 51/61
  - D. 52/61
  - E. None of these

## Answer & Explanation

**Answer – B. 45/61**

### **Explanation :**

$$\text{Probability} = (3/5 * 5/8) / ([3/5 * 5/8] + [2/5 * 1/3]) = 45/61$$

A fruit basket contains 10 Guavas and 20 Bananas out of which 3 Guavas and 5 Bananas are defective. If two fruits selected at random, what is the probability that either both are Bananas or both are non-defective?

- A. 315/435
- B. 313/435
- C. 317/435
- D. 316/435
- E. None of these

**Answer & Explanation**

Answer – D. 316/435

**Explanation :**

$$P(A) = 20C2 / 30C2, P(B) = 22C2 / 30C2$$

$$P(A \cap B) = 15C2 / 30C2$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B) \Rightarrow (20C2/30C2) + (22C2/30C2) - (15C2/30C2) = 316/435$$

A committee of five persons is to be chosen from a group of 10 people. The probability that a certain married couple will either serve together or not at all is?

- A. 54/199
- B. 52/195
- C. 53/186
- D. 51/126
- E. None of these

**Answer & Explanation**

Answer – D. 51/126

**Explanation :**

Five persons is to be chosen from a group of 10 people =  $10C5 = 252$

Couple Serve together =  $8C3 * 2C2 = 56$

Couple does not serve =  $8C5 = 56$

Probability =  $102/252 = 51/126$

Out of 14 applicants for a job, there are 6 women and 8 men. It is desired to select 2 persons for the job. The probability that atleast one of selected persons will be a Woman is?

- A. 77/91
- B. 54/91
- C. 45/91
- D. 40/91
- E. Non

**Answer & Explanation**

Answer – A. 77/91

**Explanation :**

Man only =  $8C2 = 14$

Probability of selecting no woman =  $14/91$

Probability of selecting atleast one woman =  $1 - 14/91 = 77/91$

Three Bananas and three oranges are kept in a box. If two fruits are chosen at random, Find the probability that one is Banana and another one is orange?

- A. 1/5
- B. 3/5
- C. 4/5
- D. 2/5
- E. None of these

**Answer & Explanation**

Answer – B. 3/5

**Explanation :**Total probability =  $6C2 = 15$ Probability that one is Banana and another one is orange =  $3C1 * 3C1 = 9$ probability =  $9/15 = 3/5$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If three balls picked up random, what is the probability that all three are White?

- A. 4/91
- B. 5/93
- C. 7/97
- D. 8/92

**Answer & Explanation**

Answer – A. 4/91

**Explanation :**

Total Balls = 15

Probability =  $6C3 / 15C3 = 4/91$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If three balls are picked at random, what is the probability that two are Black and one is Green?

- A. 22/355
- B. 15/381
- C. 10/393
- D. 14/455
- E. 18/455

**Answer & Explanation**

Answer – E. 18/455

**Explanation :**

Total Balls = 15

Probability =  $4C2 * 3C1 / 15C3 = 18/455$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If four balls are picked at random, what is the probability that atleast one is Black?

- A. 69/91
- B. 80/91
- C. 21/91
- D. 55/91
- E. None of these

**Answer & Explanation**

Answer – A. 69/91

**Explanation :**

Total Balls = 15

Probability =  $11C4 / 15C4 = 22/91$ One is black =  $1 - 22/91 = 69/91$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If two balls are picked at random, what is the probability that either both are Pink or both are Green?

- A. 2/105
- B. 4/105
- C. 8/137

D. 5/137

E. None of these

**Answer & Explanation**

Answer – B. 4/105

**Explanation :**Probability both are Pink =  $1/15C2$ Probability both are Green =  $3/15C2$ Required Probability =  $4/15C2 = 4/105$ 

**How many words of 4 letters with or without meaning be made from the letters of the word ‘NUMBER’, when repetition of letters is not allowed?**

- A) 480
- B) 360
- C) 240
- D) 360
- E) 24

**Answer & Explanation**

D) 360

**Explanation:**

NUMBER is 6 letters.

We have 4 places where letters are to be placed.

For first letter there are 6 choices, since repetition is not allowed, for second, third and fourth letter also we have 5, 4, and 3 choices resp., so total of  $6*5*4*3$  ways = 360 ways.

**In how many ways the letters of the word ‘ALLIGATION’ be arranged taking all the letters?**

- A) 120280
- B) 453600
- C) 360340
- D) 3628800
- E) None of these

**Answer & Explanation**

B) 453600

**Explanation:**ALLIGATION contains 10 letters, so total  $10!$  ways. There are 2 As, 2 Ls, 2 IsSo  $10!/(2!*2!*2!)$ 

**In how many ways the letters of the word ‘MUM’ be arranged such that all vowels are together?**

- A) 60
- B) 30
- C) 90
- D) 70
- E) 120

**Answer & Explanation**

A) 60

**Explanation:**

Take vowels in a box together as one – IIU, M, N, M, M

So there are 5 that to be placed for this  $5!$ , now 3 Ms, so  $5!/3!$ , so arrangement of vowels inside box gives  $3!/2!$ So total =  $5!/3! * 3!/2!$

In how many ways a group of 4 men and 3 women be made out of a total of 8 men and 5 women?

- A) 720
- B) 140
- C) 120
- D) 360
- E) 210

**Answer & Explanation**

**B) 140**

**Explanation:**

$$\text{Total ways} = {}^8C_4 * {}^5C_3$$

How many 3 digit numbers are divisible by 4?

- A) 256
- B) 225
- C) 198
- D) 252
- E) 120

**Answer & Explanation**

**B) 225**

**Explanation:**

A number is divisible by 4 when its last two digits are divisible by 4

For this the numbers should have their last two digits as 00, 04, 08, 12, 16, ... 96

By the formula,  $a_n = a + (n-1)d$

$$96 = 0 + (n-1)*4$$

$$n = 25$$

so there are 25 choices for last 2 digits and 9 choices (1-9) for the 1st digit

so total  $9*25$

How many 3 digits numbers have exactly one digit 2 in the number?

- A) 225
- B) 240
- C) 120
- D) 160
- E) 185

**Answer & Explanation**

**A) 225**

**Explanation:**

0 cannot be placed at first digit to make it a 3 digit number.

3 cases:

Case 1: 2 is placed at first place

1 choice for the first place, 9 choices each for the 2nd and 3rd digit (0-9 except 2)

$$\text{So numbers} = 1*9*9 = 81$$

Case 2: 2 is placed at second place

8 choices for the first place (1-9 except 2), 1 choice for the 2nd digit and 9 choices for the 3rd digit (0-9 except 2)

$$\text{So numbers} = 8*1*9 = 72$$

Case 3: 2 is placed at third place

8 choices for the first place (1-9 except 2), 9 choices for the 2nd digit (0-9 except 2) and 1 choice for the 3rd digit

So numbers =  $8 \times 9 \times 1 = 72$   
So total numbers =  $81 + 72 + 72 = 225$

- There are 8 men and 7 women. In how many ways a group of 5 people can be made such that the particular woman is always to be included?

- A) 860
- B) 1262
- C) 1001
- D) 1768
- E) 984

**Answer & Explanation**

C) 1001

**Explanation:**

Total 15 people, and a particular woman is to be taken to form a group of 5, so choice is to be done from 14 people of 4 people  
Ways are  ${}^{14}C_4$ .

- There are 6 men and 7 women. In how many ways a committee of 4 members can be made such that a particular man is always to be excluded?

- A) 280
- B) 420
- C) 220
- D) 495
- E) 460

**Answer & Explanation**

D) 495

**Explanation:**

There are total 13 people, a particular man is to be excluded, so now 12 people are left to chosen from and 4 members to be chosen. So ways are  ${}^{12}C_4$ .

- How many 4 digit words can be made from the digits 7, 8, 5, 0, and 4 without repetition?

- A) 70
- B) 96
- C) 84
- D) 48
- E) 102

**Answer & Explanation**

B) 96

**Explanation:**

0 cannot be on first place for it to be a 4 digit number,  
So for 1st digit 4 choices, for second also 4 (because 0 can be placed here), then 3 for third place, 2 for fourth place  
Total numbers =  $4 \times 4 \times 3 \times 2$

- In how many ways 8 students can be given 3 prizes such that no student receives more than 1 prize?

- A) 348
- B) 284
- C) 224
- D) 336
- E) None of these

**Answer & Explanation****D) 336****Explanation:**

For 1st prize there are 8 choices, for 2nd prize, 7 choices, and for 3rd prize – 6 choices left

So total ways =  $8 \times 7 \times 6$



**A box contains 27 marbles some are blue and others are green. If a marble is drawn at random from the box, the probability that it is blue is  $1/3$ . Then how many number of green marbles in the box?**

- A. 10
- B. 15
- C. 14
- D. 18

**Answer & Explanation****Answer – D. 18****Explanation :**

Blue marble – x

$$x/27 = 1/3$$

$$x/27 = 1/3 \rightarrow x = 27/3 = 9$$

No of green marbles = Total – Blue marble =  $27 - 9 = 18$

**In a bag there are 4 white, 4 red and 2 green balls. Two balls are drawn at random. What is the probability that at least one ball is of red colour?**

- A.  $4/3$
- B.  $7/3$
- C.  $1/3$
- D.  $2/3$

**Answer & Explanation****Answer – D.  $2/3$** **Explanation :**

Total Balls = 10

Other than red ball =  $6C2$

$$6C2/10C2 = 1/3 \rightarrow 1 - 1/3 = 2/3$$

**Sahil has two bags (A & B) that contain green and blue balls. In the Bag ‘A’ there are 6 green and 8 blue balls. In the Bag ‘B’ there are 4 green and 6 blue balls. One ball is drawn out from any of the bags. What is the probability that the ball drawn is blue?**

- A.  $15/28$
- B.  $13/28$
- C.  $17/28$
- D.  $23/28$

**Answer & Explanation****Answer – A.  $15/28$** **Explanation :**

Total balls in A bag = 14, Total balls in B bag = 12

$$A \text{ bag} = 1/2(8C1/14C1) = 2/7$$

$$B \text{ bag} = 1/2(6C1/12C1) = 1/4 \rightarrow \text{total Probability} = 2/7 + 1/4 = 15/28$$

**In an examination, there are three sections namely Reasoning, Maths and English. Reasoning part contains 4 questions. There are 5 questions in maths section and 6 questions in English section.**

If three questions are selected randomly from the list of questions then what is the probability that all of them are from maths?

- A. 7/91
- B. 8/91
- C. 2/91
- D. 4/91

**Answer & Explanation**

Answer – C. 2/91

**Explanation :**

Total no of questions = 15

$$\text{Probability} = 5C_3 / 15C_3 = 2/91$$

A basket contains 5 red 4 blue 3 green marbles. If three marbles picked up random, What is the probability that either all are green or all are red?

- A. 1/20
- B. 7/20
- C. 3/20
- D. 9/20

**Answer & Explanation**

Answer – A. 1/20

**Explanation :**

Total Marbles = 12

$$\text{Either all are green or all are red} = 5C_3 + 3C_3$$

$$\text{probability} = 5C_3 + 3C_3 / 12C_3 = 11/220 = 1/20$$

A basket contains 5 red 4 blue 3 green marbles. If three marbles picked up random, What is the probability that at least one is blue?

- A. 41/55
- B. 53/55
- C. 47/55
- D. 49/55

**Answer & Explanation**

Answer – A. 41/55

**Explanation :**

Total Marbles = 12

$$\text{other than blue} 8C_3 / 12C_3 = 14/55$$

$$\text{probability} = 1 - 14/55 = 41/55$$

A basket contains 5 red 4 blue 3 green marbles. If two marbles picked up random, What is the probability that both are red?

- A. 4/33
- B. 5/33
- C. 7/33
- D. 8/33

**Answer & Explanation**

Answer – B. 5/33

**Explanation :**

Total Marbles = 12

$$\text{Probability} = 5C_2 / 12C_2 = 5/33$$

A bag contains 5 red caps, 4 blue caps, 3 yellow caps and 2 green caps. If three caps are picked at random, what is the probability that two are red and one is green?

- A. 22/55
- B. 15/81
- C. 10/91
- D. 5/91

#### Answer & Explanation

Answer – D. 5/91

**Explanation :**

Total caps = 14

$$\text{Probability} = 5c2 * 2c1 / 14c3 = 5/91$$

A bag contains 5 red caps, 4 blue caps, 3 yellow caps and 2 green caps. If four caps are picked at random, what is the probability that two are red, one is blue and one is green?

- A. 22/1001
- B. 80/1001
- C. 21/1001
- D. 55/1001

#### Answer & Explanation

Answer – B. 80/1001

**Explanation :**

Total caps = 14

$$\text{Probability} = 5c2 * 4c1 * 2c1 / 14c4 = 80/1001$$

A bag contains 2 red caps, 4 blue caps, 3 yellow caps and 5 green caps. If three caps are picked at random, what is the probability that none is green?

- A. 2/13
- B. 3/13
- C. 1/13
- D. 5/13

#### Answer & Explanation

Answer – B. 3/13

**Explanation :**

Total caps = 14

$$\text{Probability} = 5c0 * 9c3 / 14c3 = 3/13$$

A bag [REDACTED] drawn out one by one and not replaced. What is the probability that they are alternatively of different colours?

- a) 7/99
- b) 11/99
- c) 14/99
- d) 19/99
- e) None of these

#### Answer & Explanation

Answer – c) 14/99

**Explanation :**

Balls are picked in two manners – RWRW or WRWR

$$\text{So probability} = (5/12)*(7/11)*(4/10)*(6/9) + (7/12)*(5/11)*(6/10)*(4/9) = 14/99$$

P and Q are sitting in a ring with 11 other persons. If the arrangement of 11 persons is at random, then the probability that there are exactly 4 persons between them?

- a) 1/3
- b) 1/4
- c) 1/5
- d) 1/6
- e) None of these

#### Answer & Explanation

Answer – d) 1/6

**Explanation :**

Fix the position of P, then Q can be sit in 12 positions, so total possible outcome = 12

Now, exactly 4 persons are sitting between them. This can be done in two ways as shown in figure, so favourable outcomes = 2

So, probability = 2/12 = 1/6

10 persons are seated around a round table. What is the probability that 4 particular persons are always seated together?

- a) 1/21
- b) 4/21
- c) 8/21
- d) 11/21
- e) None of these

#### Answer & Explanation

Answer – a) 1/21

**Explanation :**

Total outcomes =  $(10 - 1)! = 9!$

Favourable outcomes =  $6! * 4!$  (4 person seated together and 6 other persons seated randomly, so they will sit in  $(7-1)!$  Ways and those 4 persons can be arranged in  $4!$  ways)

So probability = 1/21

A box contains 4 red, 5 black and 6 green balls. 3 balls are drawn at random. What is the probability that all the balls are of same colour?

- a) 33/455
- b) 34/455
- c) 44/455
- d) 47/455
- e) Non

#### Answer & Explanation

Answer – b) 34/455

**Explanation :**

$(4c3 + 5c3 + 6c3)/15c3 = 34/455$

An apartment has 8 floors. An elevator starts with 4 passengers and stops at 8 floors of the apartment. What is the probability that all passengers travel to different floors?

- a) 109/256
- b) 135/256
- c) 105/256
- d) 95/256
- e) None of these

#### Answer & Explanation

Answer – c) 105/256

**Explanation :**

Total outcomes =  $8 \times 8 \times 8 \times 8$

Favourable outcomes =  $8 \times 7 \times 6 \times 5$  (first person having 8 choices, after that second person have 7 choices and so on)

So, probability = 105/256

A speak truth in 60% cases and B in 80% cases. In what percent of cases they likely to contradict each other narrating the same incident?

- a) 9/25
- b) 7/25
- c) 11/25
- d) 13/25
- e) None of these

**Answer & Explanation**

Answer – c) 11/25

**Explanation :**

$P(A) = 3/5$  and  $P(B) = 4/5$ . Now they are contradicting means one is telling truth and other telling the lie. So,

Probability =  $(3/5) \times (1/5) + (2/5) \times (4/5)$

A box contains 30 electric bulbs, out of which 8 are defective. Four bulbs are chosen at random from this box. Find the probability that at least one of them is defective?

- a) 432/783
- b) 574/783
- c) 209/784
- d) 334/784
- e) None of these

**Answer & Explanation**

Answer – b) 574/783

**Explanation :**

$1 - \frac{22}{30} \times \frac{21}{29} \times \frac{20}{28} \times \frac{19}{27} = 1 - \frac{209}{783} = \frac{574}{783}$

Two person A and B appear in an interview. The probability of A's selection is  $1/5$  and the probability of B's selection is  $2/7$ . What is the probability that only one of them is selected?

- a) 11/35
- b) 12/35
- c) 13/35
- d) 17/35
- e) None of these

**Answer & Explanation**

Answer – c) 13/35

**Explanation :**

A selects and B rejects + B selects and A rejects =  $(1/5) \times (5/7) + (4/5) \times (2/7) = 13/35$

A 4- digit number is formed by the digits 0, 1, 2, 5 and 8 without repetition. Find the probability that the number is divisible by 5.

- a) 1/5
- b) 2/5
- c) 3/5

- d) 4/5  
e) None of these

**Answer & Explanation**

Answer – b) 2/5

**Explanation :**Total possibility =  $5 \times 4 \times 3 \times 2$ Favourable outcomes =  $2 \times 4 \times 3 \times 2$  (to be divisible by 5 unit digit can be filled with only 0 or 5, so only two possibilities are there, then the remaining can be filled in 4, 3 and 2 ways respectively)  
so probability = 2/5

- A bag contains 6 red balls and 8 green balls. 2 balls are drawn at random one by one with replacement. Find the probability that both the balls are green

- a) 16/49  
b) 25/49  
c) 12/49  
d) 21/49  
e) None of these

**Answer & Explanation**

Answer – a) 16/49

**Explanation :**

$$(8C_1)/(14C_1) * (8C_1)*(14C_1) = 16/49$$



- In how many ways can 3 prizes be given away to 12 students when each student is eligible for all the prizes ?

- A.1234  
B.1728  
C.5314  
D.1331  
E.None of these

**Answer & Explanation**

Answer – B.1728

**Explanation :**

$$12^3 = 1728$$

- Total no of ways in which 30 sweets can be distributed among 6 persons ?

- A.35 C  
B.36 C  
C.36 C<sub>6</sub>  
D.35!/5!  
E.None of these

**Answer & Explanation**Answer – A.  ${}^{35}C_5$ **Explanation :**

$${}^{30+6-1}C_{6-1} = {}^{35}C_5$$

- A bag contains 4 red balls and 5 black balls. In how many ways can i make a selection so as to take atleast 1 red ball and 1 black ball ?

- A.564  
B.345  
C.465

D.240

E.None of these

**Answer & Explanation**

Answer – C.465

**Explanation :**

$$2^4 - 1 = 16 - 1 = 15$$

$$2^5 - 1 = 32 - 1 = 31$$

$$15 * 31 = 465$$

**In how many ways can 7 beads be strung into necklace ?**

A.2520

B.5040

C.720

D.360

E.None of these

**Answer & Explanation**

Answer – D.360

**Explanation :**

$$\text{No of way in Necklace} = (n-1)!/2 = 6!/2$$

$$= 720/2 = 360$$

**Find the no of 3 digit numbers such that atleast one of the digit is 6 (with repetitions) ?**

A.252

B.345

C.648

D.560

E.None of these

**Answer & Explanation**

Answer – A.252

**Explanation :**

$$\text{Total no of 3 digit number} = 9 * 10 * 10 = 900$$

$$\text{No of 3 digit number - none of the digit is 6} = 8 * 9 * 9 = 648$$

$$\text{No of 3 digit number - atleast one digit is 6} = 900 - 648 = 252$$

**In how many ways can 7 girls and 4 boys stand in a row so that no 2 boys are together ?**

A.8467200

B.9062

C.7407

D.8407200

E.None of these

**Answer & Explanation**

Answer – A. 8467200

**Explanation :**

$$\text{No of ways} = 7! * {}^8P_4$$

$$7! = 5040$$

$${}^8P_4 = 8 * 7 * 6 * 5 = 1680$$

$$\text{No of ways} = 5040 * 1680 = 8467200$$

**In how many ways the letters of the word PERMUTATION be arranged ?**

A.10!/2!

B.10!

- C.11!  
D.11!/2!  
E.None of these

**Answer & Explanation**

Answer – D. 11!/2!

**Explanation :**

No of ways = 11!/2!

- How many numbers can be formed with the digits 1, 7, 2, 5 without repetition ?

- A.89  
B.56  
C.64  
D.72  
E.None of these

**Answer & Explanation**

Answer – C.64

**Explanation :**

1 digit number = 4  
2 digit no =  $4 \times 3 = 12$   
3 digit no =  $4 \times 3 \times 2 = 24$   
4 digit no =  $4 \times 3 \times 2 \times 1 = 24$   
Total =  $4+12+24+24 = 64$

- There are 3 boxes and 6 balls. In how many ways these balls can be distributed if all the balls and all the boxes are different?

- A.243  
B.512  
C.729  
D.416  
E.None of these

**Answer & Explanation**

Answer – C.729

**Explanation :**  $3^6 = 729$

- In how many ways can 4 books be selected out of 10 books on different subjects ?

- A.210  
B.320  
C.716  
D.5040  
E.None of these

**Answer & Explanation**

Answer – A.210

**Explanation :**

$$^{16}C_4 = 10 \times 9 \times 8 \times 7 / 4 \times 3 \times 2 \times 1 = 5040 / 24 = 210$$

- 

A six-digit is to be formed from the given numbers 1, 2, 3, 4, 5 and 6. Find the probability that the number is divisible by 4.

- a) 3/17  
b) 4/15  
c) 4/19

- d) 4/17  
e) None of these

#### Answer & Explanation

Answer – b) 4/15

#### Explanation :

For a number to be divisible by 4, the last two digit should be divisible by 4.

So possible cases – 12, 16, 24, 32, 36, 52, 56, 64 (last two digits)

So favourable outcomes =  $24 + 24 + 24 + 24 + 24 + 24 + 24 = 192$

$$\text{So } p = 192/720 = 4/15$$

- A bag contains 6 red balls and 7 white balls. Another bag contains 5 red balls and 3 white balls.

One ball is selected from each. Find the probability that one ball is red and one is white?

- a) 53/104  
b) 47/104  
c) 63/104  
d) 51/104  
e) None of these

#### Answer & Explanation

Answer – a) 53/104

#### Explanation :

$$(6/13)*(3/8) + (7/13)*(5/8) = 53/104$$

- A lottery is organised by the college ABC through which they will provide scholarship of rupees one lakhs to only one student. There are 100 fourth year students, 150 third year students, 200 second year students and 250 first year students. What is the probability that a second year student is chosen.

- a) 1/7  
b) 2/7  
c) 3/7  
d) 4/7  
e) None of these

#### Answer & Explanation

Answer – b) 2/7

#### Explanation :

Second year students = 200

$$\text{so, } P = 200/700 = 2/7$$

- A card is drawn at random from a pack of 52 cards. Find the probability that it is neither club nor queen?

- a) 4/13  
b) 5/13  
c) 7/13  
d) 9/13  
e) None of these

#### Answer & Explanation

Answer – d) 9/13

#### Explanation :

$$1 - [13/52 + 4/52 - 1/52] = 9/13$$

- A box contains 50 balls, numbered from 1 to 50. If three balls are drawn at random with replacement. What is the probability that sum of the numbers are odd?

- a)  $1/2$
- b)  $1/3$
- c)  $2/7$
- d)  $1/5$
- e) None of these

**Answer & Explanation**

Answer –a)  $1/2$

**Explanation :**

There are 25 odd and 25 even numbers from 1 to 50.

Sum will be odd if = odd + odd + odd, odd + even + even, even + odd + even, even+ even + odd

$$\begin{aligned} P &= (1/2)*(1/2)*(1/2) + (1/2)*(1/2)*(1/2) + (1/2)*(1/2)*(1/2) + (1/2)*(1/2)*(1/2) \\ &= 4/8 = \frac{1}{2} \end{aligned}$$

- From a pack of cards, if three cards are drawn at random one after the other with replacement, find the probability that one is ace, one is jack and one is queen?**

- a)  $16/7725$
- b)  $16/5525$
- c)  $18/5524$
- d)  $64/5515$
- e) None of these

**Answer & Explanation**

Answer – b)  $16/5525$

**Explanation :**

$$(4c1 + 4c1 + 4c1)/(52c3)$$

- A and B are two persons sitting in a circular arrangement with 8 other persons. Find the probability that both A and B sit together.**

- a)  $1/9$
- b)  $2/7$
- c)  $2/9$
- d)  $2/5$
- e) None of these

**Answer & Explanation**

Answer – c)  $2/9$

**Explanation :**

Total outcomes =  $(10 - 1)! = 9!$

Favourable outcomes =  $(9 - 1)! * 2!$

So  $p = 2/9$

- Find the probability that in a random arrangement of the letter of words in the word ‘PROBABILITY’ the two I’s come together.**

- a)  $2/11$
- b)  $1/11$
- c)  $3/11$
- d)  $4/11$
- e) None of these

**Answer & Explanation**

Answer –a)  $2/11$

**Explanation :**

Total outcomes =  $11!/(2!*2!)$

favourable outcomes =  $(10! * 2!)/(2! * 2!)$

$p = 2/11$

In a race of 12 cars, the probability that car A will win is  $1/5$  and of car B is  $1/6$  and that of car C is  $1/3$ . Find the probability that only one of them won the race.

- a)  $2/7$
- b)  $7/10$
- c)  $9/10$
- d)  $3/7$
- e) None of these

#### Answer & Explanation

Answer – b)  $7/10$

Explanation :

$1/5 + 1/6 + 1/3 = 7/10$  (all events are mutually exclusive)

A bag contains 3 red balls and 8 blacks ball and another bag contains 5 red balls and 7 blacks balls, one ball is drawn at random from either of the bag, find the probability that the ball is red.

- a)  $93/264$
- b)  $95/264$
- c)  $91/264$
- d)  $97/264$
- e) None of these

#### Answer & Explanation

Answer – c)  $91/264$

Explanation :

Probability = probability of selecting the bag and probability of selecting red ball

$(1/2)*(3/11) + (1/2)*(5/12) = 91/264$



In how many ways can 5 boys and 4 girls can be seated in a row so that they are in alternate position.

- a) 2780
- b) 2880
- c) 2800
- d) 2980
- e) None of these

#### Answer & Explanation

Answer – b) 2880

Explanation :

First boys are seated in 5 position in  $5!$  Ways, now remaining 4 places can be filled by 4 girls in  $4!$  Ways, so number of ways =  $5! 4! = 2880$

In how many ways 5 African and five Indian can be seated along a circular table, so that they occupy alternate position.

- a)  $5! 5!$
- b)  $4! 5!$
- c)  $5! 4!$
- d)  $4! 4!$

#### Answer & Explanation

Answer – b)  $4! 5!$

Explanation :

First 5 African are seated along the circular table in  $(5-1)! = 4!$ . Now Indian can be seated in 5! Ways, so  $4! \cdot 5!$

- There is meeting of 20 delegates is to be held in a hotel. In how many ways these delegates can be seated along a round table, if three particular delegates always seat together.

- a)  $17! \cdot 3!$
- b)  $18! \cdot 3!$
- c)  $17! \cdot 4!$
- d) can't be determined

#### Answer & Explanation

Answer – a)  $17! \cdot 3!$

#### Explanation :

Total 20 persons, 3 always seat together,  $17 + 1 = 18$  delegates can be seated in  $(18 - 1)! = 17!$  And now that three can be arranged in  $3!$  Ways. So,  $17! \cdot 3!$

- In how many 8 prizes can be given to 3 boys, if all boys are equally eligible of getting the prize.

- a) 512
- b) 343
- c) 256
- d) 526
- e) None of these

#### Answer & Explanation

Answer – a) 512

#### Explanation :

Prizes can be given in  $8 \times 8 \times 8$  ways = 512 ways

- There are 15 points in a plane out of which 6 are collinear. Find the number of lines that can be formed from 15 points.

- a) 105
- b) 90
- c) 91
- d) 95
- e) None of these

#### Answer & Explanation

Answer – c) 91

#### Explanation :

From 15 points number of lines formed =  $15C_2$

6 points are collinear, number of lines formed by these =  $6C_2$

So total lines =  $15C_2 - 6C_2 + 1 = 91$

- In party there is a total of 120 handshakes. If all the persons shake hand with every other person. Then find the number of person present in the party.

- a) 15
- b) 16
- c) 17
- d) 18
- e) None of these

#### Answer & Explanation

Answer – b) 16

#### Explanation :

$Nc_2 = 120$  ( $N$  is the number of persons)

There are 8 boys and 12 girls in a class. 5 students have to be chosen for an educational trip. Find the number of ways in which this can be done if 2 particular girls are always included

- a) 812
- b) 816
- c) 818
- d) 820
- e) None of these

#### Answer & Explanation

Answer – b) 816

Explanation :

$$18c3 = 816 \text{ (2 girls already selected)}$$

In how many different ways the letters of the word INSIDE be arranged in such a way that all vowels always come together

- a) 64
- b) 72
- c) 84
- d) 96
- e) None of these

#### Answer & Explanation

Answer – b) 72

Explanation :

Three vowels I, I and E can be arranged in  $3!/2!$  Ways, remaining letters and group of vowels can be arranged in  $4!$  Ways. So  $4! * 3!/2!$

How many 3 digit number can be formed by 0, 2, 5, 3, 7 which is divisible by 5 and none of the digit is repeated.

- a) 24
- b) 36
- c) 48
- d) 60
- e) None of these

#### Answer & Explanation

Answer – a) 24

Explanation :

Let three digits be abc, a can be filled in 4 ways (2,3,5 and 7) c can be filled in 2 ways (0 or 5) and b can be filled in 3 ways. So,  $4 * 3 * 2 = 24$  ways

In a group of 6 boys and 8 girls, 5 students have to be selected. In how many ways it can be done so that at least 2 boys are included

- a) 1524
- b) 1526
- c) 1540
- d) 1560
- e) None of these

#### Answer & Explanation

Answer – b) 1526

Explanation :

$$6c2 * 5c3 + 6c3 * 5c2 + 6c4 * 5c1 + 6c5$$



A bag contains 5 red balls and 7 blue balls. Two balls are drawn at random without replacement, and then find the probability of that one is red and other is blue.

- a) 33/65
- b) 35/66
- c) 37/66
- d) 41/65
- e) None of these

#### Answer & Explanation

Answer – b) 35/66

#### Explanation :

(First red ball is drawn and then blue ball is drawn) + (first blue ball is drawn and then red ball is drawn)  
 $(5/12)*(7/11) + (7/12)*(5/11) = 35/66$



A bag contains 3 red balls and 8 black balls and another bag contains 5 red balls and 7 black balls, one ball is drawn at random from either of the bag, find the probability that the ball is red.

- a) 93/264
- b) 95/264
- c) 91/264
- d) 97/264
- e) None of these

#### Answer & Explanation

Answer – c) 91/264

#### Explanation :

Probability = probability of selecting the bag and probability of selecting red ball  
 $(1/2)*(3/11) + (1/2)*(5/12) = 91/264$



12 persons are seated at a circular table. Find the probability that 3 particular persons always seated together.

- a) 9/55
- b) 7/55
- c) 4/55
- d) 3/55
- e) None of these

#### Answer & Explanation

Answer – d) 3/55

#### Explanation :

total probability =  $(12-1)! = 11!$

Desired probability =  $(10 - 1)! = 9!$

So, p =  $(9! * 3!) / 11! = 3/55$



P and Q are two friends standing in a circular arrangement with 10 more people. Find the probability that exactly 3 persons are seated between P and Q.

- a) 5/11
- b) 4/11
- c) 2/11
- d) 3/11
- e) None of these

#### Answer & Explanation

Answer – c) 2/11

#### Explanation :

Fix P at one point then number of places where B can be seated is 11.

Now, exactly three persons can be seated between P and Q, so only two places where Q can be seated. So,  
 $p = 2/11$

- A basket contains 5 black and 8 yellow balls. Four balls are drawn at random and not replaced.

What is the probability that they are of different colours alternatively.

- a) 56/429
- b) 57/429
- c) 61/429
- d) 68/429
- e) None of these

#### Answer & Explanation

Answer – a) 56/429

Explanation :

$$\text{sol} \Rightarrow \text{BYBY} + \text{YBYB} = (5/13)*(8/12)*(4/11)*(7/10) + (8/13)*(5/12)*(7/11)*(4/10) = 56/429$$

- Direction(Q6 – Q8):

A bag contains 6 red balls and 8 green balls. Two balls are drawn at random one after one with replacement. What is the probability that-

Both the balls are green

- a) 13/49
- b) 15/49
- c) 16/49
- d) 17/49
- e) None of these

#### Answer & Explanation

Answer – c) 16/49

Explanation :

$$P = (8/14)*(8/14)$$

- First one is green and second one is red

- a) 16/49
- b) 14/49
- c) 11/49
- d) 12/49
- e) None of these

#### Answer & Explanation

Answer – d) 12/49

Explanation :

$$P = (8/14)*(6/14)$$

- Both the balls are red

- a) 14/49
- b) 9/49
- c) 11/49
- d) 12/49
- e) None of these

#### Answer & Explanation

Answer – b) 9/49

Explanation :

$$P = (6/14)*(6/14)$$

Find the probability that in a leap year, the numbers of Mondays are 53?

- a) 1/7
- b) 2/7
- c) 3/7
- d) 4/7
- e) None of these

**Answer & Explanation**

Answer – b) 2/7

**Explanation :**

In a leap year there are 52 complete weeks i.e. 364 days and 2 more days. These 2 days can be SM, MT, TW, WT, TF, FS, and SS.

So  $P = 2/7$

A urn contains 4 red balls, 5 green balls and 6 white balls, if one ball is drawn at random, find the probability that it is neither red nor white.

- a) 1/3
- b) 1/4
- c) 1/5
- d) 2/3
- e) None of these

**Answer & Explanation**

Answer – a) 1/3

**Explanation :**

$5c1/15c1 = 1/3$

# 120+ PROBABILITY QUESTIONS WITH SOLUTION

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1. A bag contains 8 apple and 6 orange. Four fruits are drawn out one by one and not replaced. What is the probability that they are alternatively of different fruits?

A) 10/143  
B) 15/120  
C) 20/143  
D) 26/110  
E) None

[View Answer](#)

**Option C**

**Solution:**

Fruits can be drawn in two format

AOAO and OAOA

Apple drawn 1st  $P=8/14 \times 6/13 \times 7/12 \times 5/11$

Orange drawn 1st  $P=6/14 \times 8/13 \times 5/12 \times 7/11$

Adding both we get

$$2[8/14 \times 6/13 \times 7/12 \times 5/11] = 2 \times (10/143) = 20/143.$$

2. In an interview the probability of Praveen to got selected is 0.4. The probability of Geetha to got selected is 0.5. The probability of Sam to got selected is 0.6. The probability of Suresh to got selected is 0.8. What is the probability that at least 2 of them got selected on that day?

A) 0.806  
B) 0.632  
C) 0.688  
D) 0.732  
E) None

[View Answer](#)

**Option A**

**Solution:**

Required probability = 1 - no one got selected - 1 got selected

$$\begin{aligned} \text{No one got selected} &= (1-0.4) \times (1-0.5) \times (1-0.6) \times (1-0.8) = 0.024 \\ 1 \text{ got selected} &= 0.4 \times ((1-0.5) \times (1-0.6) \times (1-0.8)) + 0.5 \times ((1-0.4) \times (1-0.6) \times (1-0.8)) \\ &\quad + 0.6 \times ((1-0.4) \times (1-0.5) \times (1-0.8)) + 0.8 \times ((1-0.4) \times (1-0.5) \times (1-0.6)) \\ &= 0.016 + 0.024 + 0.036 + 0.096 = 0.17 \\ \text{So, Required probability} &= 1 - 0.024 - 0.17 \end{aligned}$$

$$= 0.806$$

3. A basket contains 10 red ball and 15 white ball. out of which 3 red and 4 white balls are damaged. If two balls selected at random, what is the probability that either both are white balls or both are not damaged?

A) 203/435  
B) 313/300  
C) 317/400  
D) 203/300  
E) None

[View Answer](#)

**Option B**

**Solution:** |

$$P(A) = 15c2 / 25c2, P(B) = 18c2 / 25c2$$

$$P(A \cap B) = 11c2 / 25c2$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B) \Rightarrow (15c2 / 25c2) + (18c2 / 25c2) - (11c2 / 25c2) = 406/600 \Rightarrow 203/300$$

4. A box contains tickets numbered from 1 to 16. 3 tickets are to be chosen to give 3 prizes. What is the probability that at least 2 tickets contain a number which is multiple of 4?

A) 19/240  
B) 11/240  
C) 43/250  
D) 9/80  
E) None

[View Answer](#)

**Option A**

**Solution:**

From 1 to 16, there are 4 numbers which are multiple of 4

1st 2 are multiple of 4, and one any other number from (16-4) = 12 tickets

$$4c2 * 12c1 / 16c3 = 72/560$$

2nd all are multiples of 4.

$$4c3 / 16c3 = 4/560$$

Add both  $72/560 + 4/560 = 76/560$

5. Chance that Sheela tells truth is 35% and for Ramesh is 75%. In what percent they likely to contradict each other in the same question?
- A) 9/40  
B) 15/25  
C) 25/40  
D) 23/40  
E) None

**View Answer****Option D****Solution:**

$$P(A) = 35/100 = 7/20 \text{ and } P(B) = 75/100 = 3/4.$$

Now they are contradicting means one lies and other speaks truth. So,  
 $\text{Probability} = 7/20 * 1/4 + 13/20 * 3/4 = 7/80 + 39/80 = 46/80 = 23/40$

6. Two dice are thrown simultaneously. What is the probability of getting the sum of the numbers as even?
- A) 1/3  
B) 2/3  
C) 1/2  
D) 3/4  
E) None

**View Answer****Option C****Solution:**

Throw two dice  $n(s)=36$

E is nos sum is even.

Hence  $E=\{(1,1), (1,3), (1,5), (2,2), (2,4), (2,6), \dots, (6,2), (6,4), (6,6)\}$   
 $n(E)=18$

Thus required probability =  $18/36 = 1/2$

7. A basket contains 8 Red and 6 Pink toys. There is another basket which contains 7 Red and 8 Pink toys. One toy is to drawn from either of the two baskets. What is the probability of drawing a Pink toys?
- A) 101/210  
B) 85/156

- C) 75/210  
D) 120/156  
E) None

**View Answer****Option A****Solution:**

Probability of one basket =  $1/2$   
 1st Basket Pink toy probability =  $1/2 * (6c1/14c1)$   
 2nd Basket Pink toy probability =  $1/2 * (8c1/15c1)$   
 Adding both  $(1/2 * 6/14) + (1/2 * 4/15) = 3/14 + 4/15 = 101/210$

8. Four persons are chosen at random from a group of 3 men, 5 women and 4 children. What is the probability of exactly two of them being men?
- A) 10/60  
B) 12/55  
C) 25/60  
D) 13/60  
E) None

**View Answer****Option B****Solution:**

Total People =  $3 + 5 + 4 = 12$   
 $n(s)=12c4$

Probability of exactly two men and two from others  
 $N(e) = 3c2 * 9c2$   
 $\Rightarrow P = (3c2 * 9c2) / 12c4 = 12/55$

9. A box contains 3 balloons of 1 shape, 4 balloons of 1 shape and 5 balloons of 1 shape. Three balloons of them are drawn at random, what is the probability that all the three are of different shape?
- A) 3/44  
B) 5/22  
C) 3/11  
D) 10/22  
E) None

[View Answer](#)**Option C****Solution:**

$$\text{Total} = 3+4+5=12$$

$$n(s) = 12C_3 = 220$$

$$n(e) = 3C_1 * 4C_1 * 5C_1 = 60$$

$$p = 60/220 = 3/11$$

10. 12 persons are seated around a round table. What is the probability that two particular persons sit together?
- A) 2/11  
B) 4/21  
C) 8/21  
D) 6/21  
E) None

[View Answer](#)**Option A****Solution:**

In a circle of  $n$  different persons, the total number of arrangements possible =  $(n - 1)!$

$$n(S) = (12 - 1) = 11 !$$

Taking two persons as a unit, total persons = 11

Therefore no. of ways for these 11 persons to around the circular table =  $(11 - 1)! = 10!$

In any unit, 2 particular person can sit in 2! ways.

Hence total number of ways that any three person can sit,

$$= n(E) = 10! * 2!$$

Therefore  $P(E)$  = probability of three persons sitting together =  $n(E) / n(S)$   
 $= (10! * 2!) / 11! = 2/11$ .

1. A bag contains 6 red, 2 blue and 4 green balls. 3 balls are chosen at random. What is the probability that at least 2 balls chosen will be red?
- A) 2/7  
B) 1/2  
C) 1/3  
D) 2/5  
E) 3/7

[View Answer](#)**Option B****Solution:**

There will be 2 cases

Case 1: 2 red, 1 blue or green

$$\text{Prob.} = 6C_2 \times 6C_1 / 12C_3 = 9/22$$

Case 2: all 3 red

$$\text{Prob.} = 6C_3 / 12C_3 = 2/22$$

Add the cases, required prob. =  $9/22 + 2/22 = 11/22 = 1/2$

2. Tickets numbered 1 to 250 are in a bag. What is the probability that the ticket drawn has a number which is a multiple of 4 or 7?
- A) 83/250  
B) 89/250  
C) 77/250  
D) 93/250  
E) 103/250

[View Answer](#)**Option B****Solution:**

Multiples of 4 up to 120 =  $250/4 = 62$

Multiples of 7 up to 120 =  $250/7 = 35$  (take only whole number before the decimal part)

Multiple of 28 (4×7) up to 250 =  $250/28 = 8$

So total such numbers are =  $62 + 35 - 8 = 89$

So required probability =  $89/250$

3. From a deck of 52 cards, 3 cards are chosen at random. What is the probability that all are face cards?
- A) 14/1105  
B) 19/1105  
C) 23/1105  
D) 11/1105  
E) 26/1105

[View Answer](#)**Option D****Solution:**

There are  $3*4 = 12$  face cards in 52 cards

So required probability =  $12C_3 / 52C_3 = 11/1105$

4. One 5 letter word is to be formed taking all letters – S, A, P, T and E. What is the probability that this the word formed will contain all vowels together?
- A) 2/5  
B) 3/10  
C) 7/12  
D) 3/5  
E) 5/12

**View Answer****Option A****Solution:**

Total words that can be formed is  $5! = 120$   
Now vowels together:

Take: S, P, T and AE

So their arrangement is  $4! * 2! = 48$

So required probability =  $48/120 = 2/5$

5. One 5-digit number is to be formed from numbers – 0, 1, 3, 5, and 6 (repetition not allowed). What is the probability that number formed will be even?
- A) 8/15  
B) 7/16  
C) 7/15  
D) 3/10  
E) 13/21

**View Answer****Option B****Solution:**

Two cases:

Case 1: 0 at last place

So 4 choices for 1st digit, 3 for 2nd, 2 for 3rd and 1 for 4th. So numbers =  $4*3*2*1 = 24$

Case 2: 6 at last place

For 5-digit number 0 cannot be placed at 1st place or cannot be 1st digit

So 3 choices (1, 3, 5) for 1st digit, 3 for 2nd, 2 for 3rd and 1 for 4th. So numbers =  $3*3*2*1 = 18$

So total choices =  $24+18 = 42$

Number total 5-digit numbers that can be formed from 0, 1, 3, 5, and 6

0 not allowed at 1st place, so 4 choices for 1st place, 4 for 2nd, 3 for 3rd, 2 for 4th and 1 for 5th. Sp total =  $4*4*3*2*1 = 96$

So required probability =  $42/96 = 7/16$

**Directions (6-8):** There are 3 bags containing 3 colored balls – Red, Green and Yellow.

Bag 1 contains:

24 green balls. Red balls are 4 more than blue balls. Probability of selecting 1 red ball is  $4/13$

Bag 2 contains:

Total balls are 8 more than  $7/13$  of balls in bag 1. Probability of selecting 1 red ball is  $1/3$ . The ratio of green balls to blue balls is 1 : 2

Bag 3 contains:

Red balls equal total number of green and blue balls in bag 2. Green balls equal total number of green and red balls in bag 2. Probability of selecting 1 blue ball is  $3/14$ .

6. 1 ball each is chosen from bag 1 and bag 2, What is the probability that 1 is red and other blue?
- A) 15/128  
B) 21/115  
C) 17/135  
D) 25/117  
E) 16/109

**View Answer****Option D****Solution:**

Let red = x, so blue =  $x-4$

So

$$x/(24+x+(x-4)) = 4/13$$

Solve,  $x = 16$

**So bag 1: red = 16, green = 24, blue = 12**

NEXT:

bag 2: total =  $8 + 7/13 * 52 = 36$

green and blue = y and 2y. Let red balls = z

$$So z + y + 2y = 36 \dots \dots \dots (1)$$

Now Prob. of red =  $1/3$

$$So z/36 = 1/3$$

Solve,  $z = 12$

From (1),  $y = 8$

**So bag 2: red = 12, green = 8, blue = 16**

NEXT:

bag 3: red =  $8+16 = 24$ , green =  $12+8 = 20$

Blue prob. =  $3/14$

$$So a/(24+20+a) = 3/14$$

Solve,  $a = 12$

**So bag 3: red = 24, green = 20, blue = 12**

Now probability that 1 is red and other

blue::

$$16/52 * 16/36 + 12/52 * 12/36 = 25/117$$

7. Some green balls are transferred from bag 1 to bag 3. Now probability of choosing a blue ball from bag 3 becomes  $3/16$ . Find the number of remaining balls in bag 1.
- A) 60  
B) 58  
C) 52  
D) 48  
E) 44

[View Answer](#)

#### Option E

**Solution:**

blue balls in bag 3 are 12

Let  $x$  green balls are transferred. So  $12/(56+x) = 3/16$  [56 was number of bags in bag 3 before transfer] Solve,  $x = 8$   
So remaining number of balls in bag 1 =  $52 - 8 = 44$

8. Green balls in ratio 4 : 1 from bags 1 and 3 respectively are transferred to bag 4. Also 4 and 8 red balls from bags 1 and 3 respectively. Now probability of choosing green ball from bag 4 is  $5/11$ . Find the number of green balls in bag 4?
- A) 12  
B) 15  
C) 10  
D) 9  
E) 11

[View Answer](#)

#### Option C

**Solution:**

$4x$  and  $x = 5x$  green balls

$4+8 = 12$  red balls

$$\text{So } 5x/(5x+12) = 5/11$$

Solve,  $x = 2$

$$5*2 = 10 \text{ green balls}$$

**Directions (9-10):** There are 3 people – A, B and C. Probability that A speaks truth is  $3/10$ , probability that B speaks truth is  $3/7$  and probability that C speaks truth is  $5/6$ . For a particular question asked, at most 2 people speak

truth. All people answer to a particular question asked.

9. What is the probability that B will speak truth for a particular question asked?
- A)  $7/18$   
B)  $14/33$   
C)  $4/15$   
D)  $9/28$   
E)  $10/33$

[View Answer](#)

#### Option D

**Solution:**

In any case B speaks truth. Now at most 2 people speak truth for 1 question

So case 1: B and A speaks truth

$$\text{Probability} = 3/7 * 3/10 * (1-5/6) = 3/140$$

Case 2: B and C speaks truth

$$\text{Probability} = 3/7 * (1-3/10) * 5/6 = 5/20$$

Case 3: Only B speaks truth

$$\text{Probability} = 3/7 * (1-3/10) * (1-5/6) = 1/20$$

$$\text{Add the three cases} = 6/20 + 3/140 = 45/140 = 9/28$$

10. A speaks truth only when B does not speak truth, then what is the probability that C does not speak truth on a question?
- A)  $11/140$   
B)  $21/180$   
C)  $22/170$   
D)  $13/140$   
E) None of these

[View Answer](#)

#### Option A

**Solution:**

Case 1: B does not speak truth, A speaks truth

So A speaks truth here

$$\text{Probability that C does not speak truth} = 3/10 * (1-3/7) * (1-5/6) = 1/35$$

Case 2: B speaks truth

So A does not speak truth here

$$\text{Probability that C does not speak truth} = (1-3/10) * 3/7 * (1-5/6) = 1/20$$

$$\text{So total} = 1/35 + 1/20 = 11/140$$

1. There are 100 tickets in a box numbered 1 to 100. 3 tickets are drawn at one by one. Find the probability that the sum of number on the tickets is odd.

A) 2/7  
B) 1/2  
C) 1/3  
D) 2/5  
E) 3/7

**View Answer**

**Option B**

**Solution:**

There will be 4 cases

Case 1: even, even, odd

$$\text{Prob.} = 1/2 \times 1/2 \times 1/2$$

Case 2: even, odd, even

$$\text{Prob.} = 1/2 \times 1/2 \times 1/2$$

Case 3: odd, even, even

$$\text{Prob.} = 1/2 \times 1/2 \times 1/2$$

Case 4: odd, odd, odd

$$\text{Prob.} = 1/2 \times 1/2 \times 1/2$$

Add all the cases, required prob. = 1/2

2. There are 4 green and 5 red balls in first bag. And 3 green and 5 red balls in second bag. One ball is drawn from each bag. What is the probability that one ball will be green and other red?

A) 85/216  
B) 34/75  
C) 95/216  
D) 35/72  
E) 13/36

**View Answer**

**Option D**

**Solution:**

Case 1: first green, second red

$$\text{Prob.} = 4/9 \times 5/8 = 20/72$$

Case 2: first red, second green

$$\text{Prob.} = 5/9 \times 3/8 = 15/72$$

Add the two cases

3. A bag contains 2 red, 4 blue, 2 white and 4 black balls. 4 balls are drawn at random, find the probability that at least one ball is black.

A) 85/99  
B) 81/93  
C) 83/99  
D) 82/93  
E) 84/99

**View Answer**

**Option A**

**Solution:**

Prob. (At least 1 black) = 1 - Prob. (None black)

$$\text{So Prob. (At least 1 black)} = 1 - \left( {}^8C_4 / {}^{12}C_4 \right) = 1 - 14/99$$

4. Four persons are chosen at random from a group of 3 men, 3 women and 4 children. What is the probability that exactly 2 of them will be men?
- A) 1/9  
B) 3/10  
C) 4/15  
D) 1/10  
E) 5/12

**View Answer**

**Option B**

**Solution:**

2 men means other 2 woman and children

$$\text{So prob.} = {}^3C_2 \times {}^7C_2 / {}^{10}C_4 = 3/10$$

5. Tickets numbered 1 to 120 are in a bag. What is the probability that the ticket drawn has a number which is a multiple of 3 or 5?
- A) 8/15  
B) 5/16  
C) 7/15  
D) 3/10  
E) 13/21

**View Answer**

**Option C**

**Solution:**

Multiples of 3 up to 120 =  $120/3 = 40$

Multiples of 5 up to 120 =  $120/5 = 24$  (take only whole number before the decimal)

part)

Multiple of 15 ( $3 \times 5$ ) up to 120 =  $120/15 =$

8

So total such numbers are =  $40 + 24 - 8 =$

56

So required probability =  $56/120 = 7/15$

6. There are 2 people who are going to take part in race. The probability that the first one will win is  $2/7$  and that of other winning is  $3/5$ . What is the probability that one of them will win?
- A)  $14/35$   
 B)  $21/35$   
 C)  $17/35$   
 D)  $19/35$   
 E)  $16/35$

**View Answer**

#### Option D

**Solution:**

Prob. of 1st winning =  $2/7$ , so not winning  
 $= 1 - 2/7 = 5/7$

Prob. of 2nd winning =  $3/5$ , so not winning  
 $= 1 - 3/5 = 2/5$

So required prob. =  $2/7 * 2/5 + 3/5 * 5/7 =$   
 $19/35$

7. Two cards are drawn at random from a pack of 52 cards. What is the probability that both the cards drawn are face card (Jack, Queen and King)?
- A)  $11/221$   
 B)  $14/121$   
 C)  $18/221$   
 D)  $15/121$   
 E)  $14/221$

**View Answer**

#### Option A

**Solution:**

There are 52 cards, out of which there are 12 face cards.

So probability of 2 face cards =  $^{12}C_2 / ^{52}C_2 =$   
 $11/221$

8. A committee of 5 people is to be formed from among 4 girls and 5 boys. What is the

probability that the committee will have less number of boys than girls?

- A)  $7/12$   
 B)  $7/15$   
 C)  $6/13$   
 D)  $5/12$   
 E)  $7/13$

**View Answer**

#### Option D

**Solution:**

Case 1: 1 boy and 4 girls

Prob. =  $^5C_1 \times ^4C_4 / ^9C_5 = 5/146$

Case 2: 2 boys and 3 girls

Prob. =  $^5C_2 \times ^4C_3 / ^9C_5 = 40/126$

Add the two cases =  $45/126 = 5/12$

9. A bucket contains 2 red balls, 4 blue balls, and 6 white balls. Two balls are drawn at random. What is the probability that they are not of same color?
- A)  $5/11$   
 B)  $14/33$   
 C)  $2/5$   
 D)  $6/11$   
 E)  $2/3$

**View Answer**

#### Option E

**Solution:**

Three cases

Case 1: one red, 1 blue

Prob =  $^2C_1 \times ^4C_1 / ^{12}C_2 = 4/33$

Case 2: one red, 1 white

Prob =  $^2C_1 \times ^6C_1 / ^{12}C_2 = 2/11$

Case 3: one white, 1 blue

Prob =  $^6C_1 \times ^4C_1 / ^{12}C_2 = 4/11$

Add all cases

10. A bag contains 5 blue balls, 4 black balls and 3 red balls. Six balls are drawn at random. What is the probability that there are equal numbers of balls of each color?
- A)  $11/77$   
 B)  $21/77$   
 C)  $22/79$   
 D)  $13/57$

E) 15/77

**View Answer**

**Option E**

**Solution:**

$$^5C_2 \times ^4C_2 \times ^3C_2 / ^{12}C_6$$

**Directions (1-3): An urn contains some balls colored white, blue and green. The probability of choosing a white ball is 4/15 and the probability of choosing a green ball is 2/5. There are 10 blue balls.**

- What is the probability of choosing one blue ball?  
 A) 2/7  
 B) 1/4  
 C) 1/3  
 D) 2/5  
 E) 3/7

**View Answer**

**Option C**

**Solution:**

Probability of choosing one blue ball =  $1 - (4/15 + 2/5) = 1/3$

- What is the total number of balls in the urn?  
 A) 45  
 B) 34  
 C) 40  
 D) 30  
 E) 42

**View Answer**

**Option D**

**Solution:**

Probability of choosing one blue ball is 1/3  
 And total blue balls are 10. So with 10/30 we get probability as 1/3  
 So total balls must be 30

- If the balls are numbered 1, 2, ..., up to number of balls in the urn, what is the

probability of choosing a ball containing a multiple of 2 or 3?

A) 3/4

B) 4/5

C) 1/4

D) 1/3

E) 2/3

**View Answer**

**Option E**

**Solution:**

There are 30 balls in the urn.

Multiples of 2 up to 30 =  $30/2 = 15$

Multiples of 3 up to 30 =  $30/3 = 10$  (take only whole number before the decimal part)

Multiples of 6 ( $2 \times 3$ ) up to 30 =  $30/6 = 5$

So total such numbers are =  $15 + 10 - 5 = 20$

So required probability =  $20/30 = 2/3$

- There are 2 brothers A and B. Probability that A will pass in exam is 3/5 and that B will pass in exam is 5/8. What will be the probability that only one will pass in the exam?  
 A) 12/43  
 B) 19/40  
 C) 14/33  
 D) 21/40  
 E) 9/20

**View Answer**

**Option B**

**Solution:**

Only one will pass means the other will fail  
 Probability that A will pass in exam is 3/5.  
 So Probability that A will fail in exam is  $1 - 3/5 = 2/5$

Probability that B will pass in exam is 5/8.  
 So Probability that B will fail in exam is  $1 - 5/8 = 3/8$

So required probability =  $P(A \text{ will pass}) * P(B \text{ will fail}) + P(B \text{ will pass}) * P(A \text{ will fail})$

So probability that only one will pass in the exam =  $3/5 * 3/8 + 5/8 * 2/5 = 19/40$

5. If three dices are thrown simultaneously, what is the probability of having a same number on all dices?
- A) 1/36  
B) 5/36  
C) 23/216  
D) 1/108  
E) 17/216

**View Answer****Option A****Solution:**

Total events will be  $6 \times 6 \times 6 = 216$   
 Favorable events for having same number is  $\{1,1,1\}, \{2,2,2\}, \{3,3,3\}, \{4,4,4\}, \{5,5,5\}, \{6,6,6\}$  – so 6 events  
 Probability of same number on all dices is  $6/216 = 1/36$

6. There are 150 tickets in a box numbered 1 to 150. What is the probability of choosing a ticket which has a number a multiple of 3 or 7?
- A) 52/125  
B) 53/150  
C) 17/50  
D) 37/150  
E) 32/75

**View Answer****Option E****Solution:**

Multiples of 3 up to 150 =  $150/3 = 50$   
 Multiples of 7 up to 150 =  $150/7 = 21$  (take only whole number before the decimal part)  
 Multiples of 21 ( $3 \times 7$ ) up to 150 =  $150/21 = 7$   
 So total such numbers are =  $50 + 21 - 7 = 64$   
 So required probability =  $64/150 = 32/75$

7. There are 55 tickets in a box numbered 1 to 55. What is the probability of choosing a ticket which has a prime number on it?
- A) 3/55  
B) 5/58

- C) 8/21  
D) 16/55  
E) 4/13

**View Answer****Option D****Solution:**

Prime numbers up to 55 is 16 numbers which are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 43, 41, 47, 53.  
 So probability =  $16/55$

8. A bag contains 4 white and 5 blue balls. Another bag contains 5 white and 7 blue balls. What is the probability of choosing two balls such that one is white and the other is blue?
- A) 61/110  
B) 59/108  
C) 45/134  
D) 53/108  
E) 57/110

**View Answer****Option D****Solution:**

Case 1: Ball from first bag is white, from another is blue  
 So probability =  $4/9 * 7/12 = 28/108$   
 Case 2: Ball from first bag is blue, from another is white  
 So probability =  $5/9 * 5/12 = 25/108$   
 Add the cases  
 So required probability =  $28/108 + 25/108 = 53/108$

9. The odds against an event are 2 : 3 and the odds in favor of another independent event are 3 : 4. Find the probability that at least one of the two events will occur.
- A) 11/35  
B) 27/35  
C) 13/35  
D) 22/35  
E) 18/35

**View Answer**

**Option B****Solution:**

Let 2 events A and B

Odds against A are 2 : 3

So probability of occurrence of A =  $3/(2+3) = 3/5$ . And non-occurrence of A =  $2/5$

Odds in favor of B are 3 : 4

So probability of occurrence of B =  $3/(3+4) = 3/7$ . And non-occurrence of B =  $4/7$

Probability that at least one occurs

Case 1: A occurs and B does not occur

So probability =  $3/5 * 4/7 = 12/35$

Case 2: B occurs and A does not occur

So probability =  $3/7 * 2/5 = 6/35$

Case 3: Both A and B occur

So probability =  $3/5 * 3/7 = 9/35$

So probability that at least 1 will occur =  $12/35 + 6/35 + 9/35 = 27/35$

10. The odds against an event are 1 : 3 and the odds in favor of another independent event are 2 : 5. Find the probability that one of the event will occur.

A) 17/28

B) 5/14

C) 11/25

D) 9/14

E) 19/28

**View Answer**

**Option A****Solution:**

Let 2 events A and B

Odds against A are 1 : 3

So probability of occurrence of A =  $3/(1+3) = 3/4$ . And non-occurrence of A =  $1/4$

Odds in favor of B are 2 : 5

So probability of occurrence of B =  $2/(2+5) = 2/7$ . And non-occurrence of B =  $5/7$

Case 1: A occurs and B does not occur

So probability =  $3/4 * 5/7 = 15/28$

Case 2: B occurs and A does not occur

So probability =  $2/7 * 1/4 = 2/28$

So probability that one will occur =  $15/28 + 2/28 = 17/28$



From a pack of 52 cards, 1 card is chosen at random. What is the probability of the card being diamond or queen?

A) 2/7

B) 6/15

C) 4/13

D) 1/8

E) 17/52

**View Answer**

**Option C****Solution:**

In 52 cards, there are 13 diamond cards and 4 queens.

1 card is chosen at random

For 1 diamond card, probability =  $13/52$

For 1 queen, probability =  $4/52$

For cards which are both diamond and queen, probability =  $1/52$

So required probability =  $13/52 + 4/52 - 1/52 = 16/52 = 4/13$

- From a pack of 52 cards, 1 card is drawn at random. What is the probability of the card being red or ace?

A) 5/18

B) 7/13

C) 15/26

D) 9/13

E) 17/26

**View Answer**

**Option B****Solution:**

In 52 cards, there are 26 red cards and 4 ace and there are 2 such cards which are both red and ace.

1 card is chosen at random

For 1 red card, probability =  $26/52$

For 1 ace, probability =  $4/52$

For cards which are both red and ace, probability =  $2/52$

So required probability =  $26/52 + 4/52 - 2/52 = 28/52 = 7/13$

- There are 250 tickets in an urn numbered 1 to 250. One ticket is chosen at random. What is the probability of it being a number containing a multiple of 3 or 8?

A) 52/125

B) 53/250

C) 67/125

D) 101/250

E) 13/25

**View Answer****Option A****Solution:**

Multiples of 3 up to 250 =  $250/3 = 83$  (take only whole number before the decimal part)

Multiples of 8 up to 250 =  $250/8 = 31$

Multiples of 24 ( $3 \times 8$ ) up to 250 =  $250/24 = 10$

So total such numbers are =  $83 + 31 - 10 = 104$

So required probability =  $104/250 = 52/125$

There are 4 white balls, 5 blue balls and 3 green balls in a box. 2 balls are chosen at random. What is the probability of both balls being non-blue?

- A)  $23/66$
- B)  $5/18$
- C)  $8/21$
- D)  $7/22$
- E)  $1/3$

**View Answer****Option D****Solution:**

Both balls being non-blue means both balls are either white or green

There are total 12 balls ( $4+3+5$ )

and total 7 white + green balls.

So required probability =  ${}^7C_2 / {}^{12}C_2 = [(7*6/2*1) / (12*11/2*1)] = 21/66 = 7/22$

There are 4 white balls, 3 blue balls and 5 green balls in a box. 2 balls are chosen at random.

- A)  $1/3$
- B)  $5/18$
- C)  $1/2$
- D)  $4/21$
- E)  $11/18$

**View Answer****Option B****Solution:**

There are total  $4+3+5 = 12$  balls

Probability of first ball being green is =  $5/12$

Now total green balls in box =  $5 - 1 = 4$

So total white + green balls =  $4 + 4 = 8$

So probability of second ball being white or green is  $8/12 = 2/3$

So required probability =  $5/12 * 2/3 = 5/18$

2 dices are thrown. What is the probability that there is a total of 7 on the dices?

- A)  $1/3$
- B)  $2/7$
- C)  $1/6$
- D)  $5/36$
- E)  $7/36$

**View Answer****Option C****Solution:**

There are 36 total events which can happen

({1,1}, {1,2} ..... {6,6})

For a total of 7 on dices, we have – {1,6}, {6,1}, {2,5}, {5,2}, {3,4}, {4,3} – so 6 choices

So required probability =  $6/36 = 1/6$

2 dices are thrown. What is the probability that sum of numbers on the two dices is a multiple of 5?

- A)  $5/6$
- B)  $5/36$
- C)  $1/9$
- D)  $1/6$
- E)  $7/36$

**View Answer****Option E****Solution:**

There are 36 total events which can happen

({1,1}, {1,2} ..... {6,6})

For sum of number to be a multiple of 5, we have – {1,4}, {4,1}, {2,3}, {3,2}, {4,6}, {6,4}, {5,5} – so 7 choices

So required probability =  $7/36$

There are 25 tickets in a box numbered 1 to 25. 2 tickets are drawn at random. What is the probability of the first ticket being a multiple of 5 and second ticket being a multiple of 3.

- A)  $5/11$
- B)  $1/4$
- C)  $2/11$
- D)  $1/8$
- E)  $3/14$

**View Answer****Option D****Solution:**

There are 5 tickets which contain a multiple of 5

So probability of 1st ticket containing multiple

of 5 =  $5/25 = 1/5$

Now:

Case 1: If the ticket chosen contained 15

If there was a 15 on first draw, then there are 7 tickets in box which contain a multiple of 3 out of 24 tickets. ( $25/3 - 1 = 8 - 1 = 7$ ) – because 15 is already out from the box

So probability =  $7/24$  (24 tickets remaining after 1st draw)

Case 2: If the ticket chosen contained other than 15 (5 or 10 or 20 or 25)

If 15 was not there on first draw, then there are 8 tickets in box which contain a multiple of 3 out of 24 tickets. ( $25/3 = 8$ ) – because 15 is already out from the box

So probability =  $8/24$  (24 tickets remaining after 1st draw)

Add the cases for probability of multiple of 3 on second ticket, so prob. =  $7/24 + 8/24 = 15/24$  (added the cases because we want one of these cases to happen and not both)

So required probability =  $1/5 * 15/24 = 1/8$

(multiplied the cases because we want both to happen)

What is the probability of selecting a two digit number at random such that it is a multiple of 2 but not a multiple of 14?

- A)  $17/60$
- B)  $11/27$
- C)  $13/30$
- D)  $31/60$
- E)  $17/30$

**View Answer**

**Option C**

**Solution:**

There are 90 two digit numbers (10-99)

Multiple of 2 =  $90/2 = 45$

Multiple of 14 =  $90/14 = 6$

Since all multiples of 14 are also multiple of 2, so favorable events =  $45 - 6 = 39$

So required probability =  $39/90 = 13/30$

There are 2 urns. 1st urn contains 6 white and 6 blue balls. 2nd urn contains 5 white and 7 black balls. One ball is taken at random from first urn and put to second urn without noticing its color. Now a ball is chosen at random from 2nd urn. What is the probability of the second

ball being a white colored ball?

- A)  $11/13$
- B)  $6/13$
- C)  $5/13$
- D)  $5/12$
- E)  $11/12$

**View Answer**

**Option A**

**Solution:**

Case 1: first was a white ball

Now it is put in second urn, so total white balls in second urn =  $5+1 = 6$ , and total balls in second urn =  $12+1 = 13$

So probability of white ball from second urn =  $6/13$

Case 2: first was a blue ball

Now it is put in second urn, so total white balls in second urn remain 5, and total balls in second urn =  $12+1 = 13$

So probability of white ball from second urn =  $5/13$

So required probability =  $6/13 + 5/13 = 11/13$  (added the cases because we want one of these cases to happen and not both)

**A card from a pack of 52 cards is lost. From the remaining cards of the pack, two cards are drawn and are found to be both hearts. Find the Probability of the lost card being a heart?**

- .  $12/50$
- .  $8/50$
- C.  $11/50$
- D.  $9/50$
- E. None of these

**Answer & Explanation**

Answer – C.  $11/50$

**Explanation :**

Total cards = 52

Drawn cards(Heart) = 2

Present total cards = total cards-drawn cards =  $52-2=50$

Remaining Card  $13-2 = 11$

Probability =  $11/50$

**There are three boxes each containing 3 Pink and 5 Yellow balls and also there are 2 boxes each containing 4 Pink and 2 Yellow balls. A Yellow ball is selected at random.**

**Find the probability that Yellow ball is from a box of the first group?**

- A. 42/61
- B. 45/61
- C. 51/61
- D. 52/61
- E. None of these

#### Answer & Explanation

Answer – **B. 45/61**

**Explanation :**

$$\text{Probability} = \frac{(3/5 * 5/8)}{([3/5 * 5/8] + [2/5 * 1/3])} = 45/61$$

A fruit basket contains 10 Guavas and 20 Bananas out of which 3 Guavas and 5 Bananas are defective. If two fruits selected at random, what is the probability that either both are Bananas or both are non-defective?

- A. 315/435
- B. 313/435
- C. 317/435
- D. 316/435
- E. None of these

#### Answer & Explanation

Answer – **D. 316/435**

**Explanation :**

$$\begin{aligned} P(A) &= 20C2 / 30C2, P(B) = 22C2 / 30C2 \\ P(A \cap B) &= 15C2 / 30C2 \\ P(A \cup B) &= P(A) + P(B) - P(A \cap B) \Rightarrow \\ (20C2/30C2)+(22C2/30C2)-(15C2/30C2) &= 316/435 \end{aligned}$$

A committee of five persons is to be chosen from a group of 10 people. In how many ways can it be done so that a couple serve together or not at all?

- A. 54/199
- B. 52/195
- C. 53/186
- D. 51/126
- E. None of these

#### Answer & Explanation

Answer – **D. 51/126**

**Explanation :**

Five persons is to be chosen from a group of 10 people =  $10C5 = 252$   
 Couple Serve together =  $8C3 * 2C2 = 56$   
 Couple does not serve =  $8C5 = 56$   
 Probability =  $102/252 = 51/126$

Out of 14 applicants for a job, there are 6 women and 8 men. It is desired to select 2

persons for the job. The probability that atleast one of selected persons will be a Woman is?

- A. 77/91
- B. 54/91
- C. 45/91
- D. 40/91
- E. None of these

#### Answer & Explanation

Answer – **A. 77/91**

**Explanation :**

$$\begin{aligned} \text{Man only} &= 8C2 = 14 \\ \text{Probability of selecting no woman} &= 14/91 \\ \text{Probability of selecting atleast one woman} &= 1 - 14/91 = 77/91 \end{aligned}$$

Three Bananas and three oranges are kept in a box. If two fruits are chosen at random, Find the probability that one is Banana and another one is orange?

- A. 1/5
- B. 3/5
- C. 4/5
- D. 2/5
- E. None of these

#### Answer & Explanation

Answer – **B. 3/5**

**Explanation :**

$$\begin{aligned} \text{Total probability} &= 6C2 = 15 \\ \text{Probability that one is Banana and another one is orange} &= 3C1 * 3C1 = 9 \\ \text{probability} &= 9/15 = 3/5 \end{aligned}$$

A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If three balls picked up random, What is the probability that all three are White?

- A. 4/91
- B. 5/93
- C. 7/97
- D. 8/92

#### Answer & Explanation

Answer – **A. 4/91**

**Explanation :**

$$\begin{aligned} \text{Total Balls} &= 15 \\ \text{Probability} &= 6C3 / 15C3 = 4/91 \end{aligned}$$

A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If three balls are picked at random, what is the probability that two are Black and one is Green?

- A. 22/355  
 B. 15/381  
 C. 10/393  
 D. 14/455  
 E. 18/455

**Answer & Explanation**

Answer – E. 18/455

**Explanation :**

Total Balls = 15

Probability =  $4c2 * 3c1 / 15c3 = 18/455$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If four balls are picked at random, what is the probability that atleast one is Black?

- A. 69/91  
 B. 80/91  
 C. 21/91  
 D. 55/91  
 E. None of these

**Answer & Explanation**

Answer – A. 69/91

**Explanation :**

Total Balls = 15

Probability =  $11c4 / 15c4 = 22/91$ One is black =  $1 - 22/91 = 69/91$ 

- A basket contains 6 White 4 Black 2 Pink and 3 Green balls. If two balls are picked at random, what is the probability that either both are Pink or both are Green?

- A. 2/105  
 B. 4/105  
 C. 8/13  
 D. 5/13  
 E. None of these

**Answer & Explanation**

Answer – B. 4/105

**Explanation :**Probability both are Pink =  $1/15C2$ Probability both are Green =  $3/15C2$ Required Probability =  $4/15C2 = 4/105$ 

- A box contains 27 marbles some are blue and others are green. If a marble is drawn at random from the box, the probability that it is blue is  $1/3$ . Then how many number of green marbles in the box?

- A. 10  
 B. 15

- C. 14  
 D. 18

**Answer & Explanation**

Answer – D. 18

**Explanation :**

Blue marble – x

 $xc1 / 27c1 = 1/3$  $x/27 = 1/3 \rightarrow x = 27/3 = 9$ No of green marbles = Total – Blue marble =  $27 - 9 = 18$ 

- In a bag there are 4 white, 4 red and 2 green balls. Two balls are drawn at random. What is the probability that at least one ball is of red colour?

- A. 4/3  
 B. 7/3  
 C. 1/3  
 D. 2/3

**Answer & Explanation**

Answer – D. 2/3

**Explanation :**

Total Balls = 10

Other than red ball =  $6c2$  $6c2 / 10c2 = 1/3 \rightarrow 1 - 1/3 = 2/3$ 

- Sahil has two bags (A & B) that contain green and blue balls. In the Bag ‘A’ there are 6 green and 8 blue balls and in the Bag ‘B’ there are 6 green and 6 blue balls. One ball is drawn out from any of these two bags. What is the probability that the ball drawn is blue?

- A. 15/28  
 B. 13/28  
 C. 17/28  
 D. 23/28

**Answer & Explanation**

Answer – A. 15/28

**Explanation :**

Total balls in A bag = 14, Total balls in B bag = 12

A bag =  $1/2(8c1 / 14c1) = 2/7$ B bag =  $1/2(6c1 / 12c1) = 1/4 \rightarrow$  totalProbability =  $2/7 + 1/4 = 15/28$ 

- In an examination, there are three sections namely Reasoning, Maths and English. Reasoning part contains 4 questions. There are 5 questions in maths section and 6 questions in English section. If three questions are selected randomly from the list

of questions then what is the probability that all of them are from maths?

- A. 7/91
- B. 8/91
- C. 2/91
- D. 4/91

#### Answer & Explanation

Answer – C. 2/91

#### Explanation :

Total no of questions = 15

Probability =  $5c3/15c3 = 2/91$

A basket contains 5 red 4 blue 3 green marbles. If three marbles picked up random, What is the probability that either all are green or all are red?

- A. 1/20
- B. 7/20
- C. 3/20
- D. 9/20

#### Answer & Explanation

Answer – A. 1/20

#### Explanation :

Total Marbles = 12

Either all are green or all are red =  $5c3 + 3c3$

probability =  $5c3 + 3c3/12c3 = 11/220 = 1/20$

A basket contains 5 red 4 blue 3 green marbles. If three marbles picked up random, What is the probability that at least one is blue?

- A. 41/55
- B. 53/55
- C. 47/55
- D. 49/55

#### Answer & Explanation

Answer – A. 41/55

#### Explanation :

Total Marbles = 12

other than blue  $8c3 / 12c3 = 14/55$

probability =  $1 - 14/55 = 41/55$

A basket contains 5 red 4 blue 3 green marbles. If two marbles picked up random, What is the probability that both are red?

- A. 4/33
- B. 5/33
- C. 7/33
- D. 8/33

#### Answer & Explanation

Answer – B. 5/33

#### Explanation :

Total Marbles = 12

Probability =  $5c2 / 12c2 = 5/33$

A bag contains 5 red caps, 4 blue caps, 3 yellow caps and 2 green caps. If three caps are picked at random, what is the probability that two are red and one is green?

- A. 22/55
- B. 15/81
- C. 10/91
- D. 5/91

#### Answer & Explanation

Answer – D. 5/91

#### Explanation :

Total caps = 14

Probability =  $5c2 * 2c1 / 14c3 = 5/91$

A bag contains 5 red caps, 4 blue caps, 3 yellow caps and 2 green caps. If four caps are picked at random, what is the probability that two are red, one is blue and one is green?

- A. 22/1001
- B. 80/1001
- C. 21/1001
- D. 55/1001

#### Answer & Explanation

Answer – B. 80/1001

#### Explanation :

Total caps = 14

Probability =  $5c2 * 4c1 * 2c1 / 14c4 = 80/1001$

A bag contains 2 red caps, 4 blue caps, 3 yellow caps and 5 green caps. If three caps are picked at random, what is the probability that none is green?

- A. 2/13
- B. 3/13
- C. 1/13
- D. 5/13

#### Answer & Explanation

Answer – B. 3/13

#### Explanation :

Total caps = 14

Probability =  $5c0 * 9c3 / 14c3 = 3/13$

A bag contains 5 red and 7 white balls. Four balls are drawn out one by one and not replaced. What is the probability that they

are alternatively of different colours?

- a) 7/99
- b) 11/99
- c) 14/99
- d) 19/99
- e) None of these

#### Answer & Explanation

Answer – c) 14/99

**Explanation :**

Balls are picked in two manners – RWRW or WRWR

$$\text{So probability} = \frac{(5/12)*(7/11)*(4/10)*(6/9)}{(7/12)*(5/11)*(6/10)*(4/9)} = 14/99$$

P and Q are sitting in a ring with 11 other persons. If the arrangement of 11 persons is at random, then the probability that there are exactly 4 persons between them?

- a) 1/3
- b) 1/4
- c) 1/5
- d) 1/6
- e) None of these

#### Answer & Explanation

Answer – d) 1/6

**Explanation :**

Fix the position of P, then Q can be sit in 12 positions, so total possible outcome = 12  
Now, exactly 4 persons are sitting between them. This can be done in two ways as shown in figure, so favourable outcomes = 2

$$\text{So, probability} = \frac{2}{12} = \frac{1}{6}$$

10 persons are seated in a round table. What is the probability that 4 particular persons are always seated together?

- a) 1/21
- b) 4/21
- c) 8/21
- d) 11/21
- e) None of these

#### Answer & Explanation

Answer – a) 1/21

**Explanation :**

$$\text{Total outcomes} = (10 - 1)! = 9!$$

Favourable outcomes =  $6! * 4!$  (4 person seated together and 6 other persons seated randomly, so they will sit in  $(7-1)!$  Ways and those 4 persons can be arranged in  $4!$  ways)

$$\text{So probability} = \frac{1}{21}$$

A box contains 4 red, 5 black and 6 green balls. 3 balls are drawn at random. What is the probability that all the balls are of same colour?

- a) 33/455
- b) 34/455
- c) 44/455
- d) 47/455
- e) None of these

#### Answer & Explanation

Answer – b) 34/455

**Explanation :**

$$(4c3 + 5c3 + 6c3)/15c3 = 34/455$$

An apartment has 8 floors. An elevator starts with 4 passengers and stops at 8 floors of the apartment. What is the probability that all passengers travels to different floors?

- a) 109/256
- b) 135/256
- c) 105/256
- d) 95/256
- e) None of these

#### Answer & Explanation

Answer – c) 105/256

**Explanation :**

$$\text{Total outcomes} = 8 * 8 * 8 * 8$$

Favourable outcomes =  $8 * 7 * 6 * 5$  (first person having 8 choices, after that second person have 7 choices and so on)

$$\text{So, probability} = \frac{105}{256}$$

A speak truth in 60% cases and B in 80% cases. In what percent of cases they likely to contradict each other narrating the same incident?

- a) 9/25
- b) 7/25
- c) 11/25
- d) 13/25
- e) None of these

#### Answer & Explanation

Answer – c) 11/25

**Explanation :**

$P(A) = 3/5$  and  $P(B) = 4/5$ . Now they are contradicting means one is telling truth and other telling the lie. So,

$$\text{Probability} = (3/5) * (1/5) + (2/5) * (4/5)$$

A box contains 30 electric bulbs, out of which 8 are defective. Four bulbs are chosen

at random from this box. Find the probability that at least one of them is defective?

- a) 432/783
- b) 574/783
- c) 209/784
- d) 334/784
- e) None of these

#### Answer & Explanation

Answer – b) 574/783

**Explanation :**

$$1 - 22c_4/30c_4 = 1 - 209/783 = 574/783$$

Two person A and B appear in an interview. The probability of A's selection is 1/5 and the probability of B's selection is 2/7. What is the probability that only one of them is selected?

- a) 11/35
- b) 12/35
- c) 13/35
- d) 17/35
- e) None of these

#### Answer & Explanation

Answer – c) 13/35

**Explanation :**

A selects and B rejects + B selects and A rejects  
 $= (1/5)*(5/7) + (4/5)*(2/7) = 13/35$

A 4- digit number is formed by the digits 0, 1, 2, 5 and 8 without repetition. Find the probability that the number is divisible by 5.

- a) 1/5
- b) 2/5
- c) 3/5
- d) 4/5
- e) None of these

#### Answer & Explanation

Answer – b) 2/5

**Explanation :**

Total possibility =  $5*4*3*2$

Favourable outcomes =  $2*4*3*2$  (to be divisible by 5 unit digit can be filled with only 0 or 5, so only two possibilities are there, then the remaining can be filled in 4, 3 and 2 ways respectively)

so probability =  $2/5$

A bag contains 6 red balls and 8 green balls. 2 balls are drawn at random one by one with replacement. Find the probability that both the balls are green

- a) 16/49
- b) 25/49
- c) 12/49
- d) 21/49
- e) None of these

#### Answer & Explanation

Answer – a) 16/49

**Explanation :**

$$(8c_1)/(14c_1) * (8c_1)*(14c_1) = 16/49$$

A six-digit is to be formed from the given numbers 1, 2, 3, 4, 5 and 6. Find the probability that the number is divisible by 4.

- a) 3/17
- b) 4/15
- c) 4/19
- d) 4/17
- e) None of these

#### Answer & Explanation

Answer – b) 4/15

**Explanation :**

For a number to be divisible by 4, the last two digit should be divisible by 4.

So possible cases – 12, 16, 24, 32, 36, 52, 56, 64  
 (last two digits)

So favourable outcomes =  $24 + 24 + 24 + 24 + 24 + 24 + 24 = 192$

$$\text{So } p = 192/720 = 4/15$$

A bag contains 6 red balls and 7 white balls. Another bag contains 5 red balls and 3 white balls. One ball is selected from each. Find the probability that one ball is red and one is white?

- a) 53/104
- b) 47/104
- c) 63/104
- d) 51/104
- e) None of these

#### Answer & Explanation

Answer – a) 53/104

**Explanation :**

$$(6/13)*(3/8) + (7/13)*(5/8) = 53/104$$

A lottery is organised by the college ABC through which they will provide scholarship of rupees one lakhs to only one student. There are 100 fourth year students, 150 third year students, 200 second year students and 250 first year students. What is the probability

**that a second year student is chosen.**

- a) 1/7
- b) 2/7
- c) 3/7
- d) 4/7
- e) None of these

**Answer & Explanation**

Answer – b) 2/7

**Explanation :**

Second year students = 200

$$\text{so, } P = 200/700 = 2/7$$

A card is drawn from a pack of 52 cards.

The card is drawn at random; find the probability that it is neither club nor queen?

- a) 4/13
- b) 5/13
- c) 7/13
- d) 9/13
- e) None of these

**Answer & Explanation**

Answer – d) 9/13

**Explanation :**

$$1 - [13/52 + 4/52 - 1/52] = 9/13$$

A box contains 50 balls, numbered from 1 to 50. If three balls are drawn at random with replacement. What is the probability that sum of the numbers are odd?

- a) 1/2
- b) 1/3
- c) 2/7
- d) 1/5
- e) None

**Answer & Explanation**

Answer – a) 1/2

**Explanation :**

There are 25 odd and 25 even numbers from 1 to 50.

Sum will be odd if = odd + odd + odd, odd + even + even, even + odd + even, even + even + odd

$$\begin{aligned} P &= (1/2)*(1/2)*(1/2) + (1/2)*(1/2)*(1/2) + \\ &(1/2)*(1/2)*(1/2) + (1/2)*(1/2)*(1/2) \\ &= 4/8 = 1/2 \end{aligned}$$

From a pack of cards, if three cards are drawn at random one after the other with replacement, find the probability that one is ace, one is jack and one is queen?

- a) 16/7725

- b) 16/5525
- c) 18/5524
- d) 64/5515
- e) None of these

**Answer & Explanation**

Answer – b) 16/5525

**Explanation :**

$$(4c1 + 4c1 + 4c1)/(52c3)$$

A and B are two persons sitting in a circular arrangement with 8 other persons. Find the probability that both A and B sit together.

- a) 1/9
- b) 2/7
- c) 2/9
- d) 2/5
- e) None of these

**Answer & Explanation**

Answer – c) 2/9

**Explanation :**

$$\text{Total outcomes} = (10 - 1)! = 9!$$

$$\text{Favourable outcomes} = (9 - 1)! * 2!$$

$$\text{So } p = 2/9$$

Find the probability that in a random arrangement of the letter of words in the word ‘PROBABILITY’ the two I’s come together.

- a) 2/11
- b) 1/11
- c) 3/11
- d) 4/11
- e) None of these

**Answer & Explanation**

Answer – a) 2/11

**Explanation :**

$$\text{Total outcomes} = 11!/(2!*2!)$$

$$\text{favourable outcomes} = (10! * 2!)/(2!*2!)$$

$$p = 2/11$$

In a race of 12 cars, the probability that car A will win is 1/5 and of car B is 1/6 and that of car C is 1/3. Find the probability that only one of them won the race.

- a) 2/7
- b) 7/10
- c) 9/10
- d) 3/7
- e) None of these

**Answer & Explanation**

**Answer – b) 7/10**

**Explanation :**

$1/5 + 1/6 + 1/3 = 7/10$  (all events are mutually exclusive)

A bag contains 3 red balls and 8 black balls and another bag contains 5 red balls and 7 black balls, one ball is drawn at random from either of the bag, find the probability that the ball is red.

- a) 93/264
- b) 95/264
- c) 91/264
- d) 97/264
- e) None of these

**Answer & Explanation**

**Answer – c) 91/264**

**Explanation :**

Probability = probability of selecting the bag and probability of selecting red ball  
 $(1/2)*(3/11) + (1/2)*(5/12) = 91/264$

A bag contains 5 red balls and 7 blue balls. Two balls are drawn at random without replacement, and then find the probability of that one is red and other is blue.

- a) 33/65
- b) 35/66
- c) 37/66
- d) 41/65
- e) None of these

**Answer & Explanation**

**Answer – b) 35/66**

**Explanation :**

(First red ball is drawn and then blue ball is drawn) + (first blue ball is drawn and then red ball is drawn)

$$(5/12)*(7/11) + (7/12)*(5/11) = 35/66$$

A bag contains 3 red balls and 8 black balls and another bag contains 5 red balls and 7 black balls, one ball is drawn at random from either of the bag, find the probability that the ball is red.

- a) 93/264
- b) 95/264
- c) 91/264
- d) 97/264
- e) None of these

**Answer & Explanation**

**Answer – c) 91/264**

**Explanation :**

Probability = probability of selecting the bag and probability of selecting red ball  
 $(1/2)*(3/11) + (1/2)*(5/12) = 91/264$

12 persons are seated at a circular table. Find the probability that 3 particular persons always seated together.

- a) 9/55
- b) 7/55
- c) 4/55
- d) 3/55
- e) None of these

**Answer & Explanation**

**Answer – d) 3/55**

**Explanation :**

total probability =  $(12-1)! = 11!$   
 Desired probability =  $(10 - 1)! = 9!$   
 $\text{So, } p = (9! * 3!) / 11! = 3/55$

P and Q are two friends standing in a circular arrangement with 10 more people. Find the probability that exactly 3 persons are seated between P and Q.

- a) 5/11
- b) 4/11
- c) 2/11
- d) 3/11
- e) None of these

**Answer & Explanation**

**Answer – c) 2/11**

**Explanation :**

Fix P at one point then number of places where B can be seated is 11.

Now, exactly three persons can be seated between P and Q, so only two places where Q can be seated. So,  $p = 2/11$

A basket contains 5 black and 8 yellow balls. Four balls are drawn at random and not replaced. What is the probability that they are of different colours alternatively.

- a) 56/429
- b) 57/429
- c) 61/429
- d) 68/429
- e) None of these

**Answer & Explanation**

**Answer – a) 56/429**

**Explanation :**

sol=> BYBY + YBYB =  
 $(5/13)*(8/12)*(4/11)*(7/10) +$   
 $(8/13)*(5/12)*(7/11)*(4/10) = 56/429$

**Direction(Q6 – Q8):**

A bag contains 6 red balls and 8 green balls. Two balls are drawn at random one after one with replacement. What is the probability that-

Both the balls are green

- a) 13/49
- b) 15/49
- c) 16/49
- d) 17/49
- e) None of these

**Answer & Explanation**

Answer – c) 16/49

**Explanation :**

$$P = (8/14)*(8/14)$$

**First one is green and second one is red**

- a) 16/49
- b) 14/49
- c) 11/49
- d) 12/49
- e) None of these

**Answer & Explanation**

Answer – d) 12/49

**Explanation :**

$$P = (8/14)*(6/14)$$

**Both the balls are red**

- a) 14/49
- b) 9/49
- c) 11/49

- d) 12/49
- e) None of these

**Answer & Explanation**

Answer – b) 9/49

**Explanation :**

$$P = (6/14)*(6/14)$$

**Find the probability that in a leap year, the numbers of Mondays are 53?**

- a) 1/7
- b) 2/7
- c) 3/7
- d) 4/7
- e) None of these

**Answer & Explanation**

Answer – b) 2/7

**Explanation :**

In a leap year there are 52 complete weeks i.e. 364 days and 2 more days. These 2 days can be SM, MT, TW, WT, TF, FS, and SS.

$$\text{So } P = 2/7$$

**A urn contains 4 red balls, 5 green balls and 6 white balls, if one ball is drawn at random, find the probability that it is neither red nor white.**

- a) 1/3
- b) 1/4
- c) 1/5
- d) 2/3
- e) None of these

**Answer & Explanation**

Answer – a) 1/3

**Explanation :**

$$5c1/15c1 = 1/3$$

# 100+ MENSURATION QUESTIONS WITH SOLUTION

[REDACTED] ADDA.COM

1. What will be the area of trapezium whose parallel sides are 22 cm and 16 cm long, and the distance between them is 11 cm?  
 A) 209 cm<sup>2</sup>  
 B) 282 cm<sup>2</sup>  
 C) 265 cm<sup>2</sup>  
 D) 179 cm<sup>2</sup>  
 E) 302 cm<sup>2</sup>
3. At the rate of Rs. 2 per sq m, cost of painting a rectangular floor is Rs 5760. If the length of the floor is 80% more than its breadth, then what is the length of the floor?  
 A) 25 m  
 B) 72 m  
 C) 67 m  
 D) 56 m  
 E) 46 m

**View Answer****Option A****Solution:**

Area of a trapezium =  $\frac{1}{2}$  (sum of parallel sides) \* (perpendicular distance between them) =  $\frac{1}{2} (22 + 16) * (11) = 209 \text{ cm}^2$

2. The perimeter of a rectangle is 42 m. If the area of the square formed on the diagonal of the rectangle as its side is  $1\frac{1}{12}\%$  more than the area of the rectangle, find the longer side of the rectangle.  
 A) 19 m  
 B) 16 m  
 C) 9 m  
 D) 5 m  
 E) 12 m

**View Answer****Option E****Solution:**

Let the sides of the rectangle be l and b respectively.

From the given data,

$$\sqrt{(l^2 + b^2)} = (1 + 1\frac{1}{12}) lb$$

$$\Rightarrow l^2 + b^2 = (1 + 13/12) lb = 25/12 * lb$$

$$12(l^2 + b^2) = 25 lb$$

Adding 24 lb on both sides

$$12l^2 + 12b^2 + 24lb = 25 lb$$

$$12(l^2 + b^2 + 2lb) = 49 lb$$

$$12(l + b)^2 = 49 lb$$

$$\text{but } 2(l + b) = 42 \Rightarrow l + b = 21$$

$$\text{So } 12(21)^2 = 49 lb$$

Solve, we get lb = 108

Since l + b = 21, longer side = 12 m

**View Answer****Option B****Solution:**

Let the length and the breadth of the floor be 1 m and b m respectively.

$$l = b + 80\% \text{ of } b = 1 + 0.8b = 1.8b$$

$$\text{Area of the floor} = 5760/2 = 2880 \text{ sq m}$$

$$1 * b = 2880 \text{ i.e., } 1 * 1/1.8 = 2880$$

$$1 = 72$$

4. A 7 m wide path is to be made around a circular garden having a diameter of 7 m. What will be the area of the path in square metre?  
 A) 298  
 B) 256  
 C) 308  
 D) 365  
 E) 387

**View Answer****Option C****Solution:**

Area of the path = Area of the outer circle – Area of the inner circle =  $\pi\{7/2 + 7\}^2 - \pi[7/2]^2$   
 $= 308 \text{ sq m}$

5. The perimeter of a rectangle of length 62 cm and breadth 50 cm is four times perimeter of a square. What will be the circumference of a semicircle whose diameter is equal to the side of the given square?  
 A) 36 cm  
 B) 25 cm

- C) 29 cm  
D) 17 cm  
E) 16 cm

**View Answer**

**Option B**

**Solution:**

Let the side of the square be a cm.  
 Parameter of the rectangle =  $2(62 + 50) = 224$  cm  
 Parameter of the square = 56 cm  
 i.e.  $4a = 56$   
 So  $a = 14$   
 Diameter, d of the semicircle = 14 cm  
 Circumference of the semicircle =  $1/2(\pi)(r) + d$   
 $= 1/2(22/7)(7) + 14 = 25$  cm

6. What is the volume of a cylinder whose curved surface area is  $1408 \text{ cm}^2$  and height is 16 cm?  
 A)  $7715 \text{ cm}^3$   
 B)  $9340 \text{ cm}^3$   
 C)  $8722 \text{ cm}^3$   
 D)  $7346 \text{ cm}^3$   
 E)  $9856 \text{ cm}^3$

**View Answer**

**Option E**

**Solution:**

$2\pi rh = 1408$ ,  $h = 16$   
 Solve both, so  $r = 14$   
 $\text{Volume} = \pi r^2 h = (22/7) * 14 * 14 * 16 = 9856$

7. A cone with diameter of its base as 30 cm is formed by melting a spherical ball of diameter 10 cm. What is the approximate height of the cone?  
 A) 6 cm  
 B) 3 cm  
 C) 2 m  
 D) 5 cm  
 E) None of these

**View Answer**

**Option C**

**Solution:**

Radius of cone =  $30/2 = 15$ , radius of ball =  $10/2 = 5$   
 Volumes will be equal, so  
 $(1/3) \pi r^2 h = (4/3) \pi R^3$   
 $15^2 h = 4 * 5^3$   
 So  $h = 2.2$

8. A cylinder whose base of circumference is 6 m can roll at a rate of 3 rounds per second. How much distance will the cylinder cover in 9 seconds?  
 A) 125 m  
 B) 162 m  
 C) 149 m  
 D) 173 m  
 E) 157 m

**View Answer**

**Option B**

**Solution:**

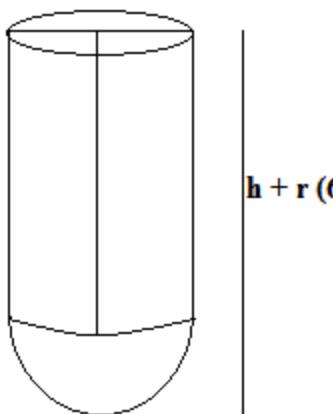
Distance covered in one round =  $2 \times \pi \times r = 6$  m  
 Distance covered in 1 second =  $3 \times 6 = 18$  m  
 So distance covered in 9 seconds =  $18 \times 9 = 162$  m

9. A container is formed by surmounting a hemisphere on a right circular cylinder of same radius as that of hemisphere. If the volume of the container is  $576\pi \text{ m}^3$  and radius of cylinder is 6 m, then find the height of the container.  
 A) 14 m  
 B) 12 m  
 C) 20 m  
 D) 18 m  
 E) 22 m

**View Answer**

**Option D**

**Solution:**



Volume of the container = Volume of the cylinder + Volume of the hemisphere  
 Volume of the container =  $\pi 6^2 h + (2/3) \pi 6^3 = 576\pi$   
 $= \pi 36 (h + 4) = 576\pi$   
 Solving we get  $h = 12$   
 So the height of the container =  $12 + 6 = 18$  m

10. The radii of two cylinders are in the ratio 3 : 2 and their curved surface areas are in the ratio 3 : 5. What is the ratio of their volumes?  
 A) 8 : 11  
 B) 5 : 9  
 C) 7 : 4  
 D) 9 : 10  
 E) 13 : 7

**View Answer**

**Option D**

**Solution:**

$$\begin{aligned} r_1/r_2 &= 3/2 \text{ or } r_1 = 3/2 * r_2 \\ \text{CSA}_1/\text{CSA}_2 &= 2\pi r_1 h_1 / 2\pi r_2 h_2 = 3/5 \\ \text{So } h_1/h_2 &= 2/5 \\ \text{Volume}_1 / \text{Volume}_2 &= \pi r_1^2 h_1 / \pi r_2^2 h_2 = 9/10 \end{aligned}$$

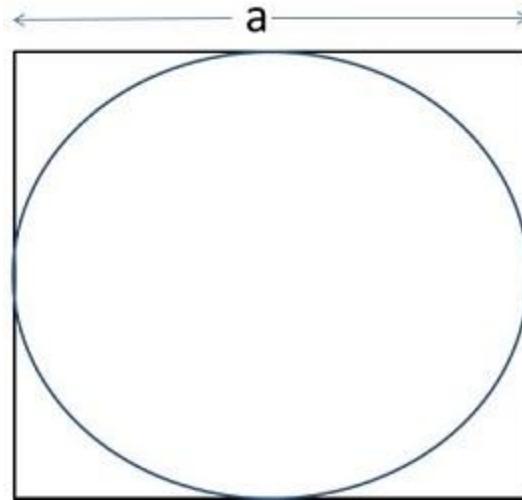
1. A right circular cone is exactly fitted inside a cube in such a way that the edges of the base of the cone are touching the edge of one of the faces of the cube and the vertex

is on the opposite face of the cube. If the volumes of cube is  $216 \text{ cm}^3$ , what is the volume of the cone (approximately)?  
 A)  $56 \text{ cm}^3$   
 B)  $60 \text{ cm}^3$   
 C)  $46 \text{ cm}^3$   
 D)  $50 \text{ cm}^3$   
 E) None of these

**View Answer**

**Option A**

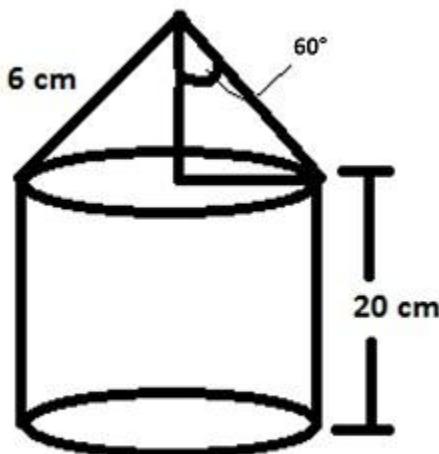
**Solution:**



radius of cone =  $a/2$   
 volume( $a^3$ ) =  $216$ , hence  $a = 6$   
 $r = 3 \text{ cm}$ ; height of the cone =  $6 \text{ cm}$  (as it is fitted in this cube of side  $6 \text{ cm}$ , hence its height will also be  $6 \text{ cm}$ )  
 Volume of cone =  $1/3 \pi * r^2 * h = 56$

2. The diagram shows a section of a rocket firework. If this section can be completely filled with gunpowder what is the volume of gunpowder required?  
 A)  $1882 \text{ cm}^3$   
 B)  $1782 \text{ cm}^3$   
 C)  $1982 \text{ cm}^3$   
 D)  $1682 \text{ cm}^3$   
 E) None of these

**View Answer**

**Option B****Solution:**

$$\sin 60 = P/H = r/6 = \sqrt{3}/2$$

$$\Rightarrow r = 3\sqrt{3} \text{ cm}$$

$$\text{In the cone; } 6^2 = h^2 + r^2$$

$$h = 3 \text{ cm}$$

Volume of Gunpowder= Volume of Cone+

$$\text{Volume of Cylinder}=1/3 \pi r^2 h + \pi r^2 h =$$

$$\pi r^2 (1/3 h + h)$$

$$= 22/7 * 27 * 21 = 1782$$

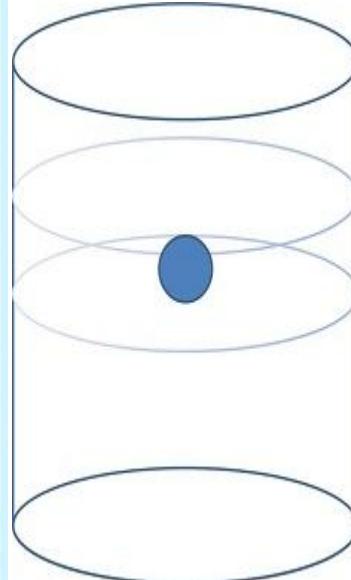
3. If a square, circle and rectangle has same perimeter then which one of them has the maximum area?
- A) Square
  - B) Circle
  - C) Rectangle
  - D) All have equal area
  - E) Cannot be determined

**View Answer****Option B**

**Solution:** In such case the area in descending order is: Circle > Square > Rectangle

4. A cylinder has some water at height 20 cm. If a sphere of radius 6 cm is poured into it then find the rise in height of water if the radius of cylinder is 4 cm.

- A) 3 cm
- B) 9 cm
- C) 18 cm
- D) 15 cm
- E) None of these

**View Answer****Option C****Solution:**

Final water level

h (increase in height due to ball)

Initial water level

20 cm

Volume of ball= volume of rising water in the cylinder

$$4/3 * \pi * r^3 = \pi * r^2 * h$$

$$4/3 * 6 * 6 * 6 = 4 * 4 * h$$

$$h = 18 \text{ cm}$$

5. If the base of a pyramid is square and its side is  $4\sqrt{2}$  cm and slant height of pyramid is 5 cm, find the volume of pyramid.
- A)  $48 \text{ cm}^3$
  - B)  $16 \text{ cm}^3$
  - C)  $24 \text{ cm}^3$
  - D)  $32 \text{ cm}^3$
  - E) None of these

**View Answer****Option D Solution:**

$l = \text{slant height} = 5 \text{ cm}$ ;  $h = \text{height}$ ;  $\text{side} = 4\sqrt{2} \text{ cm}$

$$l^2 = h^2 + [(side * \sqrt{2})/2]^2$$

Note: The content inside bracket is the calculation for half of the diagonal of the square.

$h = 3 \text{ cm}$

$$\text{volume} = 1/3 * \text{Area of base} * h \\ = 1/3 * 32 * 3 = 32$$

6. A sphere of 5 cm radius is melted and small sphere of radius 1 cm is made from it. Find the number of sphere that can be made from it.
- A) 25  
B) 125  
C) 50  
D) 100  
E) None of these

**View Answer**

**Option B**

**Solution:** Number of sphere=Volume of large sphere/volume of small sphere

$$[4/3 * \pi * r_1^3] / [4/3 * \pi * r_2^3] = 5 * 5 * 5 / 1 * 1 * 1 = 125$$

7. A person wants to make a cylindrical box which is open from the top. If the height of that box is 10 cm and radius is 7 cm find the area of sheet which is required to make it.
- A)  $880 \text{ cm}^2$   
B)  $1188 \text{ cm}^2$   
C)  $594 \text{ cm}^2$   
D)  $440 \text{ cm}^2$   
E) None of these

**View Answer**

**Option C**

**Solution:** Area required=Curved surface area + Area of base=  $2 \pi r h + \pi r^2 = 594$

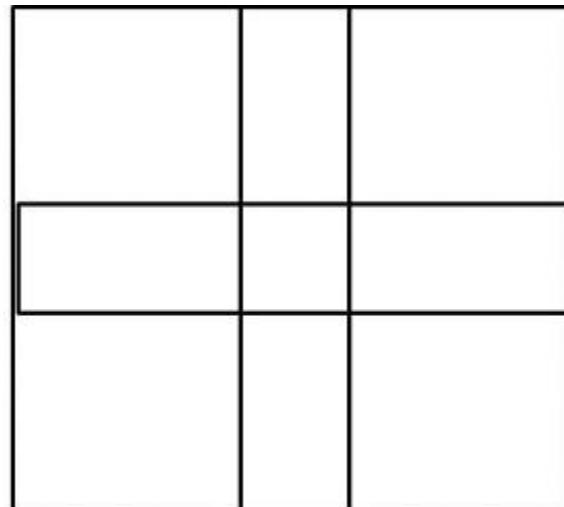
8. A square park has a 2 m wide cross road in middle of it. If the side of park is 100 m then find the remaining area of the park.
- A)  $9650 \text{ m}^2$   
B)  $9596 \text{ m}^2$   
C)  $9600 \text{ m}^2$   
D)  $9604 \text{ m}^2$

E) None of these

**View Answer**

**Option D**

**Solution:**



←-----100 m-----→

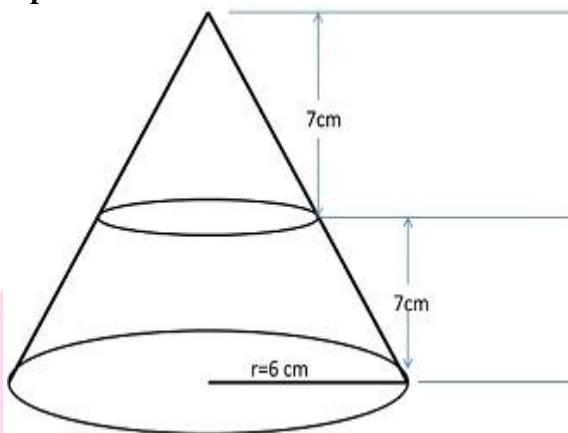
$$\text{Total area} = 10000$$

$$\text{road area} = 2 * 100 + 2 * 100 - 2 * 2 = 396$$

$$\text{remaining area} = 10000 - 396 = 9604$$

9. In a right circular cone the radius of its base is 6 cm and its height is 14 cm. A cross section is made through the mid-point of the height parallel to the base. The volume of the lower portion is?
- A)  $528 \text{ cm}^3$   
B)  $366 \text{ cm}^3$   
C)  $498 \text{ cm}^3$   
D)  $462 \text{ cm}^3$   
E) None of these

**View Answer**

**Option D Solution:**

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

Volume of lower part = volume of full cone - volume of upper cone

for full cone take  $r=6$ ,  $h=14$

for upper cone take  $r=3$  and  $h=7$

volume of lower part =  $528 - 66 = 462$

10. If radius of cone decrease by 50% and height increase by 20%. Then find the percentage change in the volume.
- A) 70% decrease  
 B) 70% increase  
 C) 40% decrease  
 D) 40% increase  
 E) 20% increase

**View Answer**

**Option A****Solution:**

$$\text{Volume of cone} = \frac{1}{3} \pi r^2 h$$

$r=50\% \text{ dec } = 1/2 \Rightarrow 2 \text{_____} 1$

$2 \text{_____} 1(\text{dec})$

$h=20\% \text{ inc } = 1/5 \Rightarrow 5 \text{_____} 6 (\text{inc})$

$2*2*5:1*1*6=10:3$

$(3-10)/10*100=70\% \text{ dec}$



The parameter of a square is equal to the perimeter of a rectangle of length 14 cm and breadth 20 cm. Find the circumference of a semicircle (approx.) whose diameter is equal to the side of the square.

- A) 32 cm  
 B) 22 cm

- C) 30 cm  
 D) 27 cm  
 E) 19 cm

**View Answer**

**Option D****Solution:**

Parameter of square =  $2 * (14+20) = 68\text{cm}$

So side of square =  $68/4 = 17\text{ cm}$

So diameter of semicircle =  $17\text{ cm}$

So circumference of a semicircle =  $\pi r = 22/7 * 17/2 = 27\text{ cm}$

There are two circles of different radius such that radius of the smaller circle is three – sevenths that of the larger circle. A square whose area equals  $3969\text{ sq cm}$  has its side as thrice the radius of the larger circle. What is the circumference of the smaller circle?

- A) 59 cm  
 B) 56.5 cm  
 C) 49.5 cm  
 D) 65.5 cm  
 E) 62 cm

**View Answer**

**Option B****Solution:**

Side of square =  $\sqrt{3969} = 63\text{ cm}$

So radius of larger circle =  $1/3 * 63 = 21\text{ cm}$

So radius of smaller circle =  $3/7 * 21 = 9\text{ cm}$

So circumference of smaller circle =  $2 * 22/7 * 9 = 56.5\text{ cm}$

A Birthday cap is in the form of a right circular cone which has base of radius as 9 cm and height equal to 12 cm. Find the approximate area of the sheet required to make 8 such caps.

- A)  $3225\text{ cm}^2$   
 B)  $3278\text{ cm}^2$   
 C)  $3132\text{ cm}^2$   
 D)  $3392\text{ cm}^2$   
 E)  $3045\text{ cm}^2$

**View Answer**

**Option D****Solution:**

$r = 9, h = 12$

So slant height,  $l = \sqrt{(9^2+12^2)} = 15\text{ cm}$

So curved surface area of a cap =  $\pi r l = 22/7 * 9 * 15 = 424\text{ sq. cm}$

So curved surface area of 8 such cap =  $424 * 8 = 3392\text{ sq. cm}$  which is also equal to area of sheet required to make 8 such caps

The barrel of a fountain pen is cylindrical in shape which radius of base as 0.7 cm and is 5 cm long. One such barrel in the pen can be used to write 300 words. A barrel full of ink which has a capacity of 14 cu cm can be used to write how many words approximately?

- A) 598
- B) 656
- C) 508
- D) 545
- E) 687

**View Answer**

**Option D**

**Solution:**

$$\text{Volume of the barrel of pen} = \pi r^2 h = 22/7 * 0.7 * 0.7 * 5 = 7.7 \text{ cu cm}$$

A barrel which has capacity 7.7 cu cm can write 300 words

$$\text{So which has capacity 14 cu cm can write} = 300/7.7 * 14 = 545 \text{ words}$$

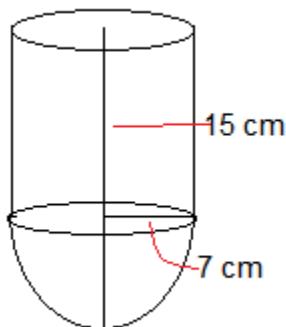
A vessel is in the form of a hemi-spherical bowl on which is mounted a hollow cylinder. The diameter of the sphere is 14 cm and the total height of vessel is 15 cm, find the capacity of the vessel.

- A) 1977.23  $\text{cm}^3$
- B) 1999.45  $\text{cm}^3$
- C) 1840.67  $\text{cm}^3$
- D) 1950.67  $\text{cm}^3$
- E) 1833.27  $\text{cm}^3$

**View Answer**

**Option**

**Solution**



Diameter is 14, so radius is 7 cm

Total height = 15 cm, so height of cylinder = 15 - 7 = 8 cm (because height of hemisphere is same as its radius)

Capacity of vessel = volume of cylinder + vol of hemisphere

$$\begin{aligned} \text{So} &= \pi r^2 h + 2/3 * \pi r^3 \\ &= 22/7 * 7 * 7 * 8 + 2/3 * 22/7 * 7 * 7 * 7 \\ &= 1232 + 718.67 \\ &= 1950.67 \text{ cu cm} \end{aligned}$$

A car has wheels of diameter 70 m. How many revolutions can the wheel complete in 20 minutes if the car is travelling at a speed of 110 m/s?

- A) 550
- B) 580
- C) 630
- D) 640
- E) 600

**View Answer**

**Option E**

**Solution:**

$$\text{Radius of wheel} = 70/2 = 35 \text{ cm}$$

$$\text{Distance travelled in one revolution} = 2\pi r = 2 * 22/7 * 35 = 220 \text{ cm}$$

Let the number of revolutions made by wheel is x

So total distance travelled = distance travelled in one revolution \* number of revolutions

$$\text{So total distance travelled} = 220x \text{ cm}$$

$$20 \text{ mins} = 20 * 60 \text{ seconds}$$

$$\text{Speed of car} = 220x/(20 * 60)$$

$$\text{So } 110 = 220x/(20 * 60)$$

Solve, x = 600

A clock has its minute hand of length 7 cm. What area will it sweep in covering 10 minutes?

- A) 32.17  $\text{cm}^2$
- B) 35.67  $\text{cm}^2$
- C) 45.45  $\text{cm}^2$
- D) 41.23  $\text{cm}^2$
- E) None of these

**View Answer**

**Option B**

**Solution:**

Length will be the radius, so  $r = 7 \text{ cm}$

Minute hand covers  $360^\circ$  in 60 minutes

So in 10 minutes it covers =  $60^\circ$

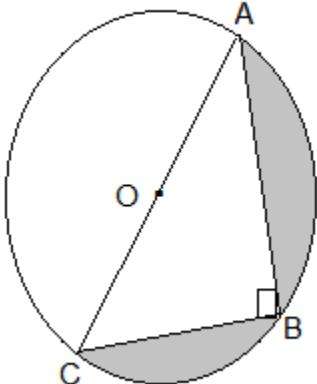
$$\text{Area of arc} = \text{angle it makes}/360 * \pi r^2$$

$$\text{So area covered} = 60/360 * 22/7 * 7 * 7 = 25.67$$

Find the area of shaded region

(approximately) in the given figure if AB = 12 cm and BC = 9 cm with O being the centre of

circle.



- A)  $40 \text{ cm}^2$
- B)  $27 \text{ cm}^2$
- C)  $23 \text{ cm}^2$
- D)  $39 \text{ cm}^2$
- E)  $34 \text{ cm}^2$

**View Answer**

**Option E**

**Solution:**

ABC forms a right angles triangle, so  $AC = \sqrt{(9^2 + 12^2)} = 15 \text{ cm}$

So diameter of circle =  $15 \text{ cm}$ , so radius =  $15/2 \text{ cm}$

Area of semicircle =  $\frac{1}{2} * 22/7 * 15/2 * 15/2 = 88.39 \text{ sq cm}$

Area of triangle =  $1/2 * \text{base} * \text{height} = 1/2 * 9 * 12 = 54 \text{ sq cm}$

So area

The surfaces of a hollow spherical shell are  $10\text{cm}$  and  $6\text{ cm}$  respectively. If it is melted and recasted into a solid cylinder of length  $8/3 \text{ cm}$ , find the diameter of the cylinder.

- A)  $28\sqrt{2} \text{ cm}$
- B)  $14\sqrt{2} \text{ cm}$
- C)  $26\sqrt{2} \text{ cm}$
- D)  $18\sqrt{2} \text{ cm}$
- E)  $22\sqrt{2} \text{ cm}$

**View Answer**

**Option A**

**Solution:**

External diameter of a sphere =  $10 \text{ cm}$

Internal diameter of the sphere =  $6 \text{ cm}$

Volume of the sphere =  $4/3 \pi (R^3 - r^3)$

$$= (4/3) (22/7) (10^3 - 6^3)$$

$$\begin{aligned} &= (4/3) (22/7) (784) \\ &= 9856 / 3 \text{ cm}^3 \end{aligned}$$

Height of the cylinder formed =  $8/3 \text{ cm}$

Let the radius of the cylinder be 'r' cm

Volume of the cylinder =  $\pi r^2 h$

$$= 22/7 * r^2 * 8/3$$

$$= 22/7 * r^2 * 8/3 = 9856 / 3$$

$$r^2 = 392$$

$$r = 14\sqrt{2} \text{ cm}$$

So Diameter of the cylinder =  $2 \times 14\sqrt{2} = 28\sqrt{2} \text{ cm}$

The radii of two cylinders are in the ratio  $4 : 5$  and their curved surface areas are in the ratio  $3 : 5$ . What is the ratio of their volumes?

- A) 11 : 24

- B) 13 : 21

- C) 7 : 19

- D) 11 : 15

- E) 12 : 25

**View Answer**

**Option E**

**Solution:**

$$r_1/r_2 = 4/5$$

$$\text{CSA}_1/\text{CSA}_2 = 2\pi r_1 h_1 / 2\pi r_2 h_2 = 3/5$$

$$\text{So } h_1/h_2 = 3/4$$

$$\text{Volume}_1 / \text{Volume}_2 = \pi r_1^2 h_1 / \pi r_2^2 h_2 = 12/25$$

- The height of the cone is  $24 \text{ cm}$  and the curved surface area of cone is  $550 \text{ cm}^2$ . Find its volume.

- A)  $1200 \text{ cm}^2$

- B)  $1232 \text{ cm}^2$

- C)  $1240 \text{ cm}^2$

- D)  $1260 \text{ cm}^2$

- E)  $1262 \text{ cm}^2$

**View Answer**

**Option B**

**Solution:**

$$\text{Volume} = 1/3 \pi * r^2 * h$$

Answer will be divisible by 11, as in pie we have  $2*11$ . As only 1232 is divisible by 11, it is the answer

- The side of a square base of a pyramid increases by  $20\%$  and its slant height increases by  $10\%$ . Find the per cent change

in Curved Surface Area.

- A) 28%
- B) 58.4%
- C) 32%
- D) 45.20%
- E) 48%

**View Answer**

**Option C**

**Solution:**

$$\text{C.S.A} = \frac{1}{2} * (\text{perimeter of base}) * l$$

$$20 + 10 + (20 * 10) / 100 = 32\%$$

3. If a copper wire is bend to make a square whose area is  $324 \text{ cm}^2$ . If the same wire is bent to form a semicircle, then find the radius of semicircle.
- A) 7 cm
  - B) 14 cm
  - C) 11 cm
  - D) 21 cm
  - E) 12 cm

**View Answer**

**Option B**

**Solution:**

$$\text{Area of square} = 324, \text{ hence side} = 18$$

$$\text{Perimeter} = 4a = 4 * 18 = 72$$

$$\text{Circumference of semicircle} = 2r + \pi r$$

$$r(2 + \pi) = 72$$

$$r = 14 \text{ cm}$$

4. A man wants to make small sphere of size 1 cm of radius from a large sphere of size of 6 cm of radius. Find out how many such sphere can be made?
- A) 216
  - B) 125
  - C) 36
  - D) 200
  - E) 64

**View Answer**

**Option A**

**Solution:**

$$\text{Volume of sphere 1} / \text{volume of sphere 2} =$$

$$\text{required number of sphere}$$

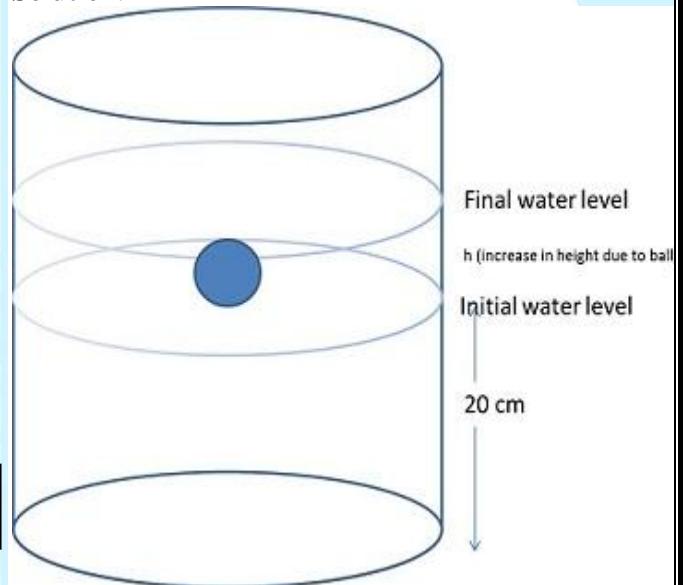
$$= 6 * 6 * 6 / 1 * 1 * 1 = 216$$

5. A sphere of radius 9 cm is dip into a cylinder who is filled with water upto 20 cm. If the radius of cylinder is 6 cm find the percentage change in height.
- A) 50%
  - B) 40%
  - C) 55%
  - D) 45%
  - E) 57%

**View Answer**

**Option D**

**Solution:**



Volume of sphere = volume of cylinder from height 20 cm to upwards.

$$\frac{4}{3} * \pi * 9 * 9 * 9 = \pi * 6 * 6 * h$$

$$h = 9$$

$$\text{new height} = 20 + 9 = 29$$

$$\% \text{change} = 9 / 20 * 100 = 45\%$$

6. The length of the perpendicular drawn from any point in the interior of an equilateral triangle to the respective sides are  $P_1, P_2$  and  $P_3$ . Find the length of each side of the triangle.
- A)  $2/\sqrt{3} * (P_1 + P_2 + P_3)$
  - B)  $1/3 * (P_1 + P_2 + P_3)$

- C)  $1/\sqrt{3} * (P_1 + P_2 + P_3)$   
 D)  $4/\sqrt{3} * (P_1 + P_2 + P_3)$   
 E)  $5/\sqrt{3} * (P_1 + P_2 + P_3)$

**View Answer****Option A**

7. A conical cup is filled with ice cream. The ice cream forms a hemispherical shape on its top. The height of the hemispherical part is 7 cm. The radius of the hemispherical part equals the height of cone then the volume of ice cream is?  
 A)  $1078 \text{ cm}^3$   
 B)  $1708 \text{ cm}^3$   
 C)  $7108 \text{ cm}^3$   
 D)  $7180 \text{ cm}^3$   
 E)  $1808 \text{ cm}^3$

**View Answer****Option A****Solution:**

$$\text{Volume} = \text{volume of hemisphere} + \text{volume of cone} = 2/3 * \pi * r^3 + 1/3 \pi * r^2 * h \\ = 1078$$

8. Assume that a drop of water is spherical and its diameter is one tenth of a cm. A conical glass has equal height to its diameter of rim. If 204800 drops of water fill the glass completely then find the height of the glass.  
 A) 12 cm  
 B) 16 cm  
 C) 20 cm  
 D) 8 cm  
 E) 10 cm

**View Answer****Option B****Solution:**

$$\text{diameter of drop of water} = 1/10 \Rightarrow \text{radius} = 1/20 \\ \text{volume of 204800 drop of water} = 204800 * 4/3 * \pi * 1/20 * 1/20 * 1/20 = \\ 1024 \pi/3$$

$$\text{Volume of cone} = 1024 \pi/3 = 1/3 * \pi * r^2 * h \\ (r=h/2) \\ h=16$$

9. If the radius of a sphere increase by 4 cm then the surface area increase by  $704 \text{ cm}^2$ . The radius of the sphere initially was?  
 A) 5  
 B) 4  
 C) 6  
 D) 8  
 E) 10

**View Answer****Option A****Solution:**

$$4 \pi(r+4)^2 - 4 * \pi * r^2 = 704 \\ \text{solve and get } r=5$$

10. By melting two solid metallic spheres of radii 1 cm and 6 cm, a hollow sphere of thickness 1 cm is made. The external radius of the hollow sphere will be.  
 A) 8 cm  
 B) 9 cm  
 C) 6 cm  
 D) 7 cm  
 E) 10 cm

**View Answer****Option B****Solution:**

$$4/3 * \pi (R^3 + r^3) = 4/3 * \pi * ((x+1)^3 - x^3) \\ R=6 \text{ cm}; r=1 \text{ cm}; x = \text{radius of hollow sphere inner}; (x+1) = \text{outer radius} \\ \text{solve and get } x=8 \\ \text{outer} = x+1 = 9 \text{ cm}$$

1. A room 10mtr long 4mtr broad and 4mtr high has two windows of 2\*1mtr and 3\*2mtr. Find the cost of papering the walls with paper 50cm wide at 25paisa per meter?  
 A) Rs48  
 B) Rs50

- C) Rs52  
D) Rs54  
E) Rs46

**View Answer**

**Option C**

**Solution:**

Area of walls =  $2(10+4)*4 = 112$   
Area of windows =  $2+6 = 8$   
Area to be covered =  $112 - 8 = 104$  mtr  
Length of paper =  $104/50 * 100 = 208$  m  
Cost =  $208 * 25/100 = 52$

2. A cubical block of  $8\text{m} * 12\text{m} * 16\text{m}$  is cut into exact number of equal cubes. The least possible number of cubes will be?  
 A) 9  
 B) 24  
 C) 18  
 D) 30  
 E) 12

**View Answer**

**Option B**

**Solution:**

H.C.F of 8,12,16 = 4  
Least number of cubes =  $8 * 12 * 16 / 4 * 4 * 4 = 24$

3. Find the volume, curved surface area and the total surface area of a hemisphere of radius 21cm?  
 A)  $19404\text{cm}^3, 2772\text{cm}^2, 4158\text{cm}^2$   
 B)  $4158\text{cm}^3, 5000\text{cm}^2, 4000\text{cm}^2$   
 C)  $20000\text{cm}^3, 40000\text{cm}^2, 1000\text{cm}^2$   
 D)  $30000\text{cm}^3, 2000\text{cm}^2, 5000\text{cm}^2$   
 E)  $40302\text{cm}^3, 3320\text{cm}^2, 5650\text{cm}^2$

**View Answer**

**Option A**

**Solution:**

The option which gets divided by 11, will be the answer  
Method to check –  $19404 =$  add alternate number =  $1+4+4 = 9$

$$0+9=9$$

Find difference =  $9-9=0$

If difference is either 0 or divisible of 11 then number is divisible of 11.

Ans  $\neg \rightarrow$  A

4. A right circular cone is exactly fitted inside a cube in such a way that the edges of the base of the cone are touching the edges of one of the faces of the cube and the vertex is on the opposite face of the cube. If the volume of cube is 2744 cubic cm, what is the approximate volume of the cone?  
 A) 715  
 B) 719  
 C) 729  
 D) 725  
 E) 710

**View Answer**

**Option B**

**Solution:**

side of cone  $3\sqrt[3]{2744} = 14$

Radius of cone = 7

Height = 14

Volume =  $1/3 \pi r^2 h$

$$1/3 * 22/7 * 7 * 7 * 14 = 718.66 = 719$$

5. A hollow cylindrical tube is open at both ends is made of iron 4cm thick. If the external diameter be 52cm and the length of the tube be 120cm, find the number of cubic cm of iron in it?approx  
 A) 72419  
 B) 72425  
 C) 72405  
 D) 72411  
 E) 72534

**View Answer**

**Option D**

**Solution:**

$H = 120$  external diameter – 52

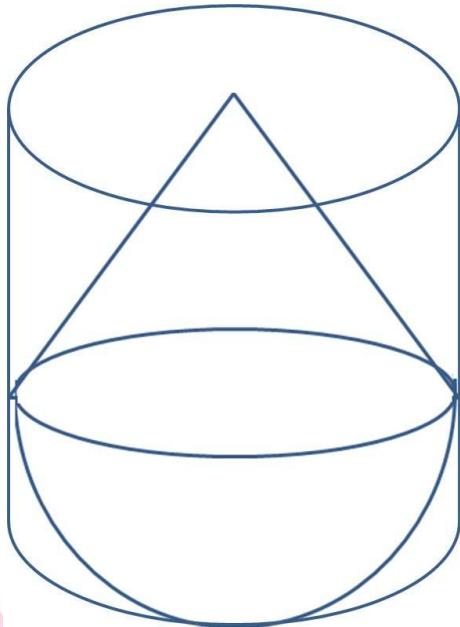
External radius = 26

Internal radius =  $26-4 = 22$

Volume of iron = external volume – internal volume

$$\frac{22}{7} * 26 * 26 * 120 - \frac{22}{7} * 22 * 22 * 120 = 72411$$

6. A solid toy is in the form of a hemisphere surmounted by a right circular cone. Height of the cone is 2cm and the diameter of the base is 4cm. If a right circular cylinder circumscribe the solid, find how much more space will it cover?
- A)  $4\pi \text{ cm}^3$   
 B)  $2\pi \text{ cm}^3$   
 C)  $16\pi \text{ cm}^3$   
 D)  $8\pi \text{ cm}^3$   
 E)  $8\pi \text{ cm}^3$

**View Answer****Option D****Solution:**

$$R \text{ of hemisphere} = \frac{4}{2} = 2\text{cm}$$

$$H \text{ of cylinder} = 4\text{cm}$$

$$R \text{ of cone} = 2\text{cm}$$

$$V \text{ of cylinder} - \text{volume of solid} = \pi * 2^2 * 4 - (2/3 \pi * 2^3 + 1/3 \pi * 2^3)$$

$$= 16\pi - 8\pi$$

$$= 8\pi$$

7. The ratio between volumes of a hemisphere and a cone is 1:1. If the cone's height is equal to its diameter, then find the ratio of diameter of hemisphere and cone ?  
 A) 2:1

- B) 1:1  
 C) 3:2  
 D) 2:3

**View Answer****Option B****Solution:**

let the radius of hemisphere and cone are  $r_1$  and  $r_2$

$$H \text{'s volume/c's volume} = 1/1$$

$$So [2/3 \pi r_1^3]/[1/3 \pi r_2^2 * 2r_2] = 1/1$$

$$So r_1 : r_2 = 1 : 2 \text{ or } D_1 : D_2 = 1 : 1$$

8. If the height of a pyramid is 12cm and its base is a square which perimeter is 40cm, then find the volume of pyramid?
- A) 300  $\text{cm}^3$   
 B) 200  $\text{cm}^3$   
 C) 400  $\text{cm}^3$   
 D) 500  $\text{cm}^3$

**View Answer****Option C****Solution:**

$$\text{perimeter of base} = 40$$

$$\text{Side of base} = 10$$

$$\text{Area of base} = 100$$

$$\text{Volume} = 1/3 * \text{area of base} * \text{height} \\ = 1/3 * 100 * 12 = 400\text{cm}^3$$

9. If the perimeter of square, circle, rectangle, are equal. Then whose area is largest?
- A) Circle  
 B) Square  
 C) Rectangle  
 D) All are equal

**View Answer****Option A****Solution:**

when perimeter of these are equal then descending order of area is

Circle >square> rectangle.

So option A is Ans

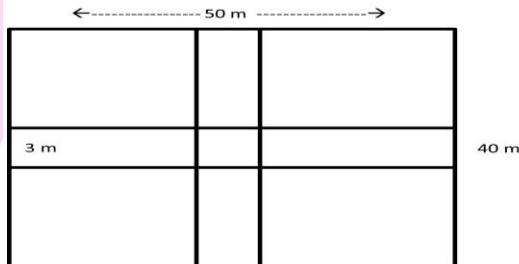
10. A rectangular plot of grass is 50m long and 40m broad. From the center of each side a

path of 3m wide goes across the center of the opposite side. Find the area of path?

- A) 270
- B) 280
- C) 251
- D) 261

**View Answer**

**Option D**  
**Solution:**



$$\text{area of road} = 3 \times 50 + 3 \times 40 - 3^2 \\ = 270 - 9 = 261$$



Poles are to be fixed along the boundary of a rectangular field in such a way that distance between any two adjacent poles is 2 m. The perimeter of the field is 70 m and length and the breadth of the field are in the ratio 4:3 resp. How many poles will be required?

- A) 42
- B) 40
- C) 35
- D) 38
- E) 45

**View Answer**

**Option C**

**Solution:**

Required between the two poles =  
(Perimeter/Distance between any two adjacent poles)  
=  $70 / 2 = 35$

The circumference of a circular garden is 1320 m. Find the area. Outside the garden, a road of 2 m width runs around it. What is the area of this road and calculate the cost of gravelling it at the rate of 50 paise per sq. m.

- A)  $2500.15 \text{ m}^2$ , Rs.1500.15

- B)  $2652.57 \text{ m}^2$ , Rs.1326.285
- C)  $2541.14 \text{ m}^2$ , Rs.1600.47
- D)  $3245.78 \text{ m}^2$ , Rs.2000
- E)  $4157.12 \text{ m}^2$ , Rs.1452.11

**View Answer**

**Option B**

**Solution:**

$$\text{Circumference of the garden} = 2\pi R = 1320$$

$$R = 210 \text{ m}$$

$$\text{Outer radius} = 210 + 2 = 212 \text{ m}$$

$$\text{Area of the road} = \pi(212)^2 - \pi(210)^2 \\ = \pi \cdot 422^2 = 2652.57 \text{ m}^2$$

$$\text{Therefore,} \\ \text{cost of gravelling} = 2652.57 \times 0.5 = \\ \text{Rs.1326.285}$$

A square shape of park of area 23,104 sq. m is to be enclosed with wire placed at heights 1,2,3,4 m above the ground. Find required length of the wire, if its length required for each circuit is 10% greater than the perimeter of the field?

- A) 2675.2 m
- B) 2145.12 m
- C) 2750 m
- D) 2478.11 m
- E) 2400.5 m

**View Answer**

**Option A**

**Solution:**

$$\text{Perimeter} = \sqrt{23,104} \times 4 = (152 \times 4) \text{ m}$$

$$\text{Length of each circuit} = 152 \times 4 \times (110/100)$$

$$\text{The wire goes around 4 times, so the total length of the wire required} = 152 \times 4 \times (110/100) \times 4 = 2675.2 \text{ m}$$

Area of a hexagon is  $54\sqrt{3} \text{ cm}^2$ . What is its side?

- A) 7 cm
- B) 5 cm
- C) 4 cm
- D) 6 cm
- E) 8 cm

**View Answer**

**Option C**

**Solution:**

$$(6\sqrt{3}/4) \times a^2 = 54\sqrt{3}$$

$$\Rightarrow a^2 = 36$$

$$\Rightarrow a = 6 \text{ cm}$$

Smallest side of a right angled triangle is 8 cm less than the side of a square of perimeter 64cm . Second largest side of the right angled triangle is 4 cm less than the length of rectangle of area 112 sq. cm and breadth 8 cm .What is the largest side of the right angled triangle?

- A) 9.2cm
- B) 7.75cm
- C) 10.50cm
- D) 14cm
- E) 12.80cm

[View Answer](#)

**Option E**

**Solution:**

Side of a square = (perimeter /4) =  $64/4 = 16 \text{ cm}$   
smallest side =  $16 - 8 = 8\text{cm}$   
Length of the rectangle = Area/Breadth =  $112/8 = 14\text{cm}$   
Second side of triangle =  $14 - 4 = 10\text{cm}$   
Hypotenuse of the right angled triangle =  $\sqrt{(8)^2+(10)^2} = 12.80 \text{ cm}$

If the radius of the circular field is equal to the side of a square field .If the difference between the area of the circular field and area of the square field is 5145 sq. m ,then calculate the perime

- A) 421
- B) 315
- C) 310m
- D) 308m
- E) 300m

[View Answer](#)

**Option D**

**Solution:**

Let the radius of the circular field and the side of the square field be r

Then,

$$\pi r^2 - r^2 = 5145$$

$$\Rightarrow r^2[(22-7)/7] = 5145$$

$$\Rightarrow r = 49 \text{ m}$$

Therefore ,

$$\text{circumference of the circular field} = 2\pi r =$$

308m

A rectangular plot has a concrete path running in the middle of the plot parallel to the parallel to the breadth of the plot. The rest of the plot is used as a lawn ,which has an area of 240sq. m. If the width of the path is 3m and the length of the plot is greater than its breadth by 2m ,what is the area of the rectangular plot(in m )?

- A) 410m
- B) 288m
- C) 250m
- D) 300m
- E) 320m

[View Answer](#)

**Option B**

**Solution:**

Let width be x m  
and length be  $(x+2)\text{m}$   
Area of path =  $3x \text{ sq. m}$   
 $x(x+2) - 3x = 240$   
 $\Rightarrow x^2 - x - 240 = 0$   
 $\Rightarrow x(x - 16) + 15(x - 16) = 0$   
 $\Rightarrow (x - 16)(x + 15) = 0$   
 $\Rightarrow x = 16$   
Length =  $16 + 2 = 18\text{m}$   
Therefore ,  
Area of plot =  $16 * 18 = 288\text{sq. m}$

A solid spherical ball of radius r is converted into a solid circular cylinder of radius R. If the height of the cylinder is twice the radius of the sphere ,then find the relation between these two with respect to radius.

- A)  $R = r\sqrt{(3/4)}$
- B)  $R = r\sqrt{(3/2)}$
- C)  $R = r\sqrt{(1/2)}$
- D)  $R = r\sqrt{(2/3)}$
- E)  $R = r\sqrt{(1/3)}$

[View Answer](#)

**Option D**

**Solution:**

Since one object is converted into another so the volume will remain the same .

Therefore ,

$$(4/3)\pi r^3 = \pi R^2 H$$

$$\Rightarrow R = r\sqrt{(2/3)}$$

- A rectangular tank of length 37 (1/3) m internally , 12 m in breadth and 8 m in depth is full of water .Find the weight of water in metric tons, given that one cubic metre of water weighs 1000kg.
- A) 3584 metric tons  
 B) 4500 metric tons  
 C) 4101 metric tons  
 D) 3870 metric tons  
 E) 5721 metric tons

**View Answer****Option A****Solution:**

$$\text{Volume of water} = 37(1/3)*12*8 \text{ m}^3$$

$$\text{Weight of water} = (112/3)*12*8*1000 = 3584 \text{ metric tons.}$$

- An equilateral triangle and a regular hexagon have equal perimeters. The ratio of the area of the triangle and that of the hexagon is :

- A) 3:4  
 B) 4:9  
 C) 1:2  
 D) 2:3  
 E) 4:5

**View Answer****Option****Solution**

Let side of triangle be  $x$  and the side of regular hexagon be  $y$  .

$$3x = 6y$$

$$\Rightarrow x = 2y$$

$$\text{Area of triangle} = (\sqrt{3}/4)x^2$$

$$\text{Area of hexagon} = 6 * (\sqrt{3}/4) * y^2 = (3\sqrt{3}/8)*x^2$$

$$\text{Required ratio} = 2 : 3$$

- A solid metallic spherical ball of radius 28 cm is melted down and recast into small cones. If the diameter of the base of the cone is 28 cm and the height is 4 cm, find the number of such cones can be made ?

- A) 106  
 B) 118  
 C) 112

- D) 95  
 E) None

**View Answer****Option C****Solution:**

$$\text{Volume of sphere} = (4/3)\pi r^3$$

$$\text{Volume of cone} = (1/3)\pi r^2 h$$

$$\text{Let the number of cones be 'X'}$$

$$\Rightarrow (4/3) * \pi * 28^3 = (1/3) * \pi * 14^2 * 4 * (X)$$

$$\Rightarrow X = 112$$

- The length and the breadth of a rectangular table are increased by 1 m each and due to this the area of the table increased by 27 sq. m. But if the length is increased by 1 m and breadth decreased by 1 m, area is decreased by 7 sq. m. Find the perimeter of the table.

- A) 45m  
 B) 52m  
 C) 60m  
 D) 72m  
 E) None

**View Answer****Option B****Solution:**

Let original length =  $l$ , breadth =  $b$ , so area =  $lb$   
 When  $l$  and  $b$  increased by 1:

$$(l+1)(b+1) = lb + 27$$

$$\text{Solve, } l + b = 26$$

When  $l$  increased by 1,  $b$  decreased by 1:  
 $(l+1)(b-1) = lb - 7$

$$\text{Solve, } l - b = 6$$

Now solve both equations,  $l = 16$ ,  $b = 10$

$$\text{Perimeter} = 2(16+10)=52\text{m}$$

- The water in a rectangular tank having a base 80 m by 60 m is 6.5 m deep. In what time can the water be emptied by a pipe of which the cross-section is a square of side 20 cm, if the water runs through the pipe at the rate of 20 km per hour?

- A) 39hrs  
 B) 45hrs  
 C) 60hrs  
 D) 40hrs  
 E) None

**View Answer****Option A****Solution:**

Volume of water in the tank is  
 $80 \times 60 \times 6.5 = 31200 \text{ m}^3$

Then Volume of water flown in 1 hr is  
 $20 \times 1000 (\text{in meter}) \times 20 / 100 \times 20 / 100 (\text{in meter}) = 800 \text{ m}^3$

Time taken =  $31200 / 800 = 39 \text{ hrs}$

The perimeter of a square is twice the perimeter of a rectangle. If the perimeter of a square is 140 cms and the length of the rectangle is 20 cm. Find the breadth of the rectangle?

- A) 18
- B) 20
- C) 15
- D) 12
- E) None

**View Answer****Option C****Solution:**

Perimeter of a Square =  $4a = 140$

$$a = 140 / 4 = 35 \text{ cm}$$

Perimeter of a rectangle =  $140 / 2 = 70 \text{ cm} = 2(l+b)$

$$2(20+b) = 70$$

$$B = 35 - 20 = 15$$

A farmer wishes to grow a  $100 \text{ m}^2$  rectangular vegetable garden. Since he has with him only 30 m barbed wire, he fences three sides of the rectangle. What will be the dimension of his garden?

- A) 20, 5
- B) 25, 4
- C) 15, 5
- D) 10, 10
- E) None

**View Answer****Option A****Solution:**

Area of the garden =  $100 \text{ m}^2$

$$\Rightarrow l \times b = 100$$

$$\Rightarrow b = 100/l$$

Garden is fenced on three sides.

Length of fencing =  $2l + b = 30$

$$\Rightarrow (200/b + b) = 30$$

$$\Rightarrow b^2 - 30b + 200 = 0$$

$$\Rightarrow (b - 20)(b - 10) = 0$$

$$\Rightarrow b = 20 \text{ or } 10$$

$$\Rightarrow l = 100/20 = 5 \text{ or } 100/10 = 10$$

The garden is in the shape of a rectangle. Therefore, the length and the breadth of the garden are 5 m and 20 m respectively.

Inside a square plot a circular garden is developed which exactly fits in the square plot and the diameter of the garden is equal to the side of the square plot which is 28m. What is the area of space left out in the square plot after developing the garden ?

- A)  $132 \text{ m}^2$
- B)  $140 \text{ m}^2$
- C)  $168 \text{ m}^2$
- D)  $156 \text{ m}^2$
- E) None

**View Answer****Option C****Solution:**

$$\text{area of space left} = (\text{area of square} - \text{area of circle}) 28 \times 28 - (22/7 \times 14 \times 14)$$

$$= 784 - 616$$

$$= 168 \text{ m}^2$$

A room is 7.5 m long, 5.5 m broad and 5 m high. What will be the expenditure in covering the walls by paper 40 cm broad at the rate of 80 paise per metre ?

- A) 255.5
- B) 260
- C) 282.25
- D) 244
- E) None

**View Answer****Option B****Solution:**

$$\text{Area of four walls} = 2 \times 5 (7.5 + 5.5) = 130 \text{ m}^2$$

$$\text{Area of required paper} = 130 \text{ m}^2$$

$$\text{Breadth of the paper} = 40 \text{ cm} = 0.4 \text{ m}$$

$$\therefore \text{Length of the paper} = 130 / 0.4 = 325 \text{ m}$$

$$\therefore \text{Cost of paper at 80 paise per meter} = 325 \times 0.80 = \text{Rs.} 260$$

In measuring the sides of a rectangle, one side is increased by 30%, and the other side is

decreased by 15%. What is the change in its area as a percentage ?

- A) 7.5
- B) 8
- C) 10.5
- D) 11
- E) 12

**View Answer**

**Option C**

**Solution:**

Let initial area of a rectangle is 100.

Then  $100 \times 130 / 100 \times 85 / 100 = 110.5$

The change in Diff is  $110.5 - 100 = 10.5$

The ratio between three angles of a quadrilateral is 7:11:13 respectively. the value of the fourth angle of the quadrilateral is  $112^\circ$ . what is the difference between the largest and smallest angles of the quadrilateral ?

- A)  $72^\circ$
- B)  $110^\circ$
- C)  $90^\circ$
- D)  $56^\circ$
- E) None

**View Answer**

**Option D**

**Solution:**

Total angles of quadrilateral is  $360^\circ$

$$7x + 11x + 13x + 112 = 360$$

$$\Rightarrow 31x = 360 - 112$$

$$\Rightarrow x = 24$$

Then 1

$$2nd \text{ angle} = 11 \times 8 = 88^\circ$$

$$3rd \text{ angle} = 13 \times 8 = 104$$

$$\text{the largest angle} = 112^\circ$$

$$\text{smallest angle} = 56^\circ$$

$$\text{difference between largest and smallest angle} = 112 - 56 = 56^\circ$$

A took 15 seconds to cross a rectangular field diagonally walking at the rate of 52 m/min and B took the same time to cross the same field along its sides walking at the rate of 68 m/min. The area of the field is:

- A)  $30 \text{ m}^2$
- B)  $40 \text{ m}^2$
- C)  $50 \text{ m}^2$
- D)  $60 \text{ m}^2$
- E) None

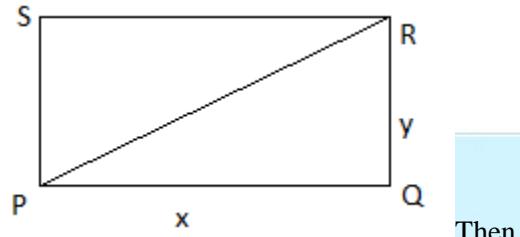
**View Answer**

**Option D**

**Solution:**

$$\text{length of the diagonal} = PR = 52 \times 15 / 60 = 13 \text{ m}$$

$$\text{Length of its side} = PQ + QR = 68 \times 15 / 60 = 17 \text{ m}$$



Then

$$x + y = 17 \text{ and From pythagoras theorem}$$

$$x^2 + y^2 = 169(13^2)$$

Solving both  $x = 12$  and  $y = 5$

$$\text{Area} = 12 \times 5 = 60 \text{ m}^2$$

**1. Rahul invested 20% more than Mohit. Mohit invested 10% less than Raghu. If the total sum of their investment is Rs.17880, how much amount did Raghu invest?**

**Answer:**

Let the investment made by Raghu be  $100x$ , so Mohit's investment =  $90x$  and rahul's investment =  $108x$

$$108x + 90x + 100x = 298x = 17880$$

$$X=60$$

$$\text{So, Raghu investment} = 100x = \text{Rs.}6000$$

**2. A, B, C and D are four salesman in the first month they received a commission of Rs.3200 from their company and divided it in the ratio of 2 : 3 : 4 : 7 in the second month the commission doubled, the amount was doubled in the ratio 3 : 4 : 5 : 4. In the third month the commission tripled when compared to the first month and they shared in the ratio of 4 : 7 : 3: 2 and in the fourth month the commission became half of the previous month and they shared it in the ratio of 4 : 3 : 5 : 4 . What was the average monthly earning of C over the period?**

**Answer:**

$$\text{Total commission in first month} = \text{Rs.}3200$$

$$\text{Total commission in second month} = \text{Rs.}6400$$

$$\text{Total commission in thired month} = \text{Rs.}9600$$

$$\text{Total commission in fourth month} = \text{Rs.}4800$$

$$\text{"C's share in the commission} = " \frac{4}{16} \text{ of } 3200 + \frac{5}{16} \text{ of } 6400 + \frac{3}{16} \text{ of } 9600 + \frac{5}{16} \text{ of } 4800 "$$

$$= 800 + 2000 + 1800 + 1500 = \text{Rs.}6100$$

$$\text{"C's average monthly earnings} = " \frac{6100}{4} = \text{Rs.}1525.$$

**3. Two shops A and B marked the same brand of jeans for Rs.900. Shop A offers successive discounts of 15% and 15% While shop B offers successive discounts of 20% and 10%. Then the difference in the selling price of jeans is?**

**Answer:**

$$\text{Final selling price of jeans in shop A} = (900 - 900 \times 0.15) - (900 - 900 \times 0.15) \times 0.15 = \text{Rs.}650.25$$

$$\text{Final selling price of jeans in shop B} = (900 - 900 \times 0.20) - (900 - 900 \times 0.20) \times 0.10 = \text{Rs.}648$$

$$\text{Difference} = \text{Rs.}2.25$$

**4. Let us assume that 20g of sugar dissolves in 100g of water. Even an extra pellet will remain undissolved and sediment at the bottom of the solution. Now, water starts evaporating from 1kg of 7% solution at the rate of 32.5g per hour. After how long will the sediments start to evaporate?**

**Answer:**

Sedimentation occurs when more than 20g of sugar is present in 100g of water.

$$\text{Amount of sugar in 1kg of water} = 70\text{g}$$

$$\text{"Amount of water needed for sedimentation to start} = " \frac{70 \times 100}{20} = 350\text{g}$$

$$\text{Amount of water that should evaporate} = 1000 - 350 = 650\text{g}$$

$$\text{"Time required for eveporation} = " \frac{650}{32.5} = 20 \text{ hours.}$$

**5. Two liquids A and B are in ratio 4:1 in container X and 3:5 in container Y. In what ratio should the content of both container be mixed so that the resulting mixture has A and B in ratio 2:3?**

**Answer:**

Let the ratios in which they are mixed is  $x$  and  $y$

$$\text{Therefore } A = 4/5x + 3/8y$$

$$B = 1/5x + 5/8y$$

$$\text{Now } A/B = 2/3$$

$$\text{On solving we get } x:y = 1:16$$

**6. 8 women can complete the work in 10 days and 5 men can complete the work in 8 days where as 25 children can complete in 4 days. 16 women,4 men and 20 children work together for 2 days.If only women were to complete the remaining work in 1 day, how many women would be required?**

**Answer:**

$$(M1)(H1)(D1)/(W1) = (M2)(H2)(D2)/(W2)$$

$$\text{Hence } (8 * 10)W = (5 * 8)M = (25 * 4)C$$

$$4W = 2M = 5C$$

$$\text{Now } 16W + 4M + 20C = 16W + 8W + 16W = 40W$$

$$8W \text{ one day work} = 1/10$$

$$40W \text{ one day work} = (1/10) * (40/8) = 1/2$$

$$40W \text{ 2 day work} = 1$$

$$\text{Remaining Work} = 0$$

Work is already completed.

**7. A tank has a leak which would empty it in 6 hrs. A tap pumps water @ 8 litres/ minute into the tank, and it is now emptied in 12 hrs. What is the capacity of tank?**

**Answer:**

In the absence of leak time taken by tap to fill tank=12\*6/12-6=12hour

Water filled in 1 hour=8\*60=480L

Therefore water filled in 12 hour=12\*480=5760L

**8. A man borrows Rs. 25,000 at 20% compound interest. At the end of every year he pays Rs. 5000 as part of repayment. How much does he still owe after three such installments?**

**Answer:**

C.I of 20000 in 3 years = $25000*(1+20/100)^3=43200$ Rs

But as we are paying 2000Rs at the end of every year hence that should be subtracted at the end of every year and the C.I on remaining amount must be calculated.

Therefore C.I of 2000Rs that is paid at the end of 1st year= $5000*(1+10/100)^2=7200$

C.I of 2000Rs that is paid at the end of 2nd year= $5000*(1+10/100)^1=6000$

Hence due amount after 3rd payment= $43200-(7200+6000+5000)=25000$

**9. In a triangle, two sides of right angle triangle are 8 cm and 6 cm. If the triangle is revolved along the 8 cm side, the curved surface area of the cone so formed will be**

**Answer:**

Radius of cone =8cm

Slant height=10cm

Curved surface area= $\pi rl=22/7*6*10=188.4$  cubic cm

**10. Anil and Ruhi started a business by investing Rs 2000 and Rs 2800 respectively. After 8 months, Anil added Rs 600 and Ruhi added Rs 400. At the same time Teena joined them with Rs 4200. Find the share of Teena if they get a profit of Rs 34,300 after a year.**

**Answer:**

Share of Anil : Share of Ruhi : Share of Teena is

$2000\times 8 + 2600\times 4 : 2800\times 8 + 3200\times 4 : 4200\times 4$

33 : 44 : 21

so share of Teena =  $21/(33+44+21) \times 34300 = \text{Rs } 7350$

**11. A sum of Rs 7000 is deposited in two schemes. One part is deposited in Scheme A which offers 8% rate of interest. Remaining part is invested in Scheme B which offers 10% rate of interest compounded annually. If interest obtained in scheme A after 4 years is Rs 226 more than the interest obtained in scheme B after 2 years, find the part deposited in scheme B.**

**Answer:**

$$(7000-x)*8*4/100 = x [ (1 + 10/100)2 - 1 ] + 226$$

$$70*8*4 - 32x/100 = 21x/100 + 226$$

$$2240 - 226 = 53x/100$$

$$2014 = 53x/100$$

$$\text{So, } x = \text{Rs } 3800$$

**12. A work which is completed by 20 men in 8 days can be completed by 25 women 12 days. 16 men and 10 women start doing the work. After 3 days, they leave. If the remaining work is to be completed in 6 days by x number of men, find x.**

**Answer:**

20 men in 8 days so 16 men in  $20 \times 8/16 = 10$  days and

25 women in 12 days so 10 women in  $25 \times 12/10 = 30$  days

So in 3 days, they complete  $(1/10 + 1/30) \times 3 = 2/5$

So remaining work =  $1 - 2/5 = 3/5$

20 m 1 work in 8 days and x men  $3/5$  work in 6 days

So  $20 \times 8 \times 3/5 = x \times 6 \times 1$

So, x = 16 men

**13. There are 140 tickets (numbered 1 to 140) in a bowl. Find the probability of choosing a ticket which bears multiple of either 3 or 7.**

**Answer:**

Number of multiples of 3 in 140 =  $140/3 = 46$

Number of multiples of 7 in 140 =  $140/7 = 20$

Number of multiples of  $3 \times 7 = 21$  in 140 =  $140/21 = 6$

So required probability =  $(46+20 - 6)/140 = 60/140 = 3/7$

**14. A 48 litres solution contains liquids water and milk in the ratio 3 : 5. How much amount of milk is to be added so that amount of milk is 70% of the new solution?**

**Answer:**

Water present in solution =  $3/8 * 48 = 18$  l

Milk present in solution =  $5/8 * 48 = 30$  l

Let x litres of milk to be added

Milk is to be 70% of new solution, so water is to be 30% of new solution. So

$30/100$  of new solution = Water present in new solution

$$30/100 * (48+x) = 18$$

So,  $x = 12$  litres

OR

$70/100$  of new solution = Milk present in new solution

$$70/100 * (48+x) = 30+x$$

So,  $x = 12$  litres

**15. In a class, average age of 30 students is 18 years. If the age of 2 more students is taken into consideration, then the average of all students gets increase by 1. Find the average of the ages of those 2 students.**

**Answer:**

30 students – 18

32 students – 19

So total age of those 2 students =  $30 \times 1 + 19 \times 2 = 68$

So average =  $68/2 = 34$

**16. The ratio of A's age 3 years ago and B's age 5 years hence is 3 : 4. The average of the ages of A and C is 20 years. Also C's age after 10 years will be 2 more than twice the age present age of B. Find the age of C.**

**Answer:**

$$(A - 3)/(B + 5) = \frac{3}{4} \Rightarrow 4A - 12 = 3B + 15 \Rightarrow 4A - 3B = 27 \quad \dots(1)$$

$$(A + C)/2 = 20 \Rightarrow A + C = 40 \quad \dots(2)$$

$$C + 10 = 2B + 2 \Rightarrow B = (C + 8)/2 \quad \dots(3)$$

$$\text{From (1) and (2)} \quad (27 + 3B)/4 + C = 40 \quad \dots(4)$$

$$\text{From (3) and (4)} \quad (27 + 3(C + 8)/2) + 4C = 160 \Rightarrow C = 22$$

**17. The circumference of a circle having radius equal to 35 cm is equal to the perimeter of a rectangle. If the area of rectangle is 2400 cm<sup>2</sup>, find the length of rectangle.**

**Answer:**

$$2 \times 22/7 \times 35 = 2(l + b)$$

$$\text{so } (l + b) = 110$$

also given,  $lb = 2400$

$$\text{So } (l + 2400/l) = 110$$

$$\text{So } l^2 - 110l + 2400 = 0$$

So,  $l = 80$  or  $30$ .

**18. The market price of an item is 20% more than its cost price. If after selling the item, the profit percent obtained is 10%, find the discount given.**

**Answer:**

$$\text{Use } MP = (100+p\%)/(100-d\%) * CP$$

So

$$120/100 * CP = (100+10)/(100-d\%) * CP$$

Solve,  $d\%$  is  $25/3\%$

Let  $CP = \text{Rs } 100$ , so  $MP = \text{Rs } 120$ , and  $SP = \text{Rs } 110$

So when discount % =  $(120-110)/120 * 100 = 25/3\%$ , discount =  $\text{Rs } 10$

**19. A, B and C divide Rs 3900 among them in the ratio 4 : 4 : 5 respectively. Now if each of them got Rs 300 more, what will be the respective new ratio of dividing the total money among them?**

**Answer:**

$$\text{A got} = [4/(4+4+5)] * 3900 = 1200, \text{B got} = [4/(4+4+5)] * 3900 = 1200, \text{C got} = [5/(4+4+5)] * 3900 = 1500$$

When 300 is added to their shares,  $A = 1200 + 300 = 1500$ ,  $B = 1200 + 300 = 1500$ ,  $C = 1500$

So new ratio is  $1500 : 1500 : 1800 = 5 : 5 : 6$

**20. Mohan distributed his assets to his wife , four sons, three daughters and six grand children in such a way that each grand child got one-sixteenth of each son and one-tenth of each daughter. His wife got 60% of the total share of his sons and daughter together. If each daughter receives assets of worth Rs.1.25 lakh, what is the share of his wife?**

**Answer:**

"Share of 1 grand child =  $1/10 \times 1.25$  lakh = 0.125 lakhs

Share of 1 son =  $16 \times 0.125$  lakh = 2 lakhs

Share of 4 sons=  $4 \times 2$  lakhs= 8 lakhs

Share of 3 daughters =  $3 \times 1.25$  lakhs = 3.75 lakhs

Total share of sons and daughters =  $(8+3.75)$  lakhs=11.75 lakhs

$6/10 \times 11.75$  lakhs=Rs.705000.

**21.** There are 3 inlet pipes X, Y and Z connected to a tank. If only one pipe is opened at a time, then it takes 50, 40 and 25 minutes for pipes X, Y and Z respectively to fill the tank. Find the time taken to fill 99% of the tank if it is known that in every 5 minutes for the first 2 minutes pipe Y is opened and then closed for 3 minutes. The remaining pipes are always kept open.

**Answer:**

Part of the tank filled per minute by pipes X and Z respectively = 2% and 4%

Pipe Y fills 5% of the tank for every 2 minutes it operates.

In 5 minutes, the tank filled by X and Z = 30% and by pipe Y = 5%

So, in 5 minutes , % of tank filled = $30+5=35\%$

In 10 minutes, the tank is filled 70%

For next 2 minutes part of tank filled = $5+12=17\%$

The remaining 12% is filled in time = 2 minutes

Total time taken = $10+2+2=14$ minutes

**22.** A certain number of people get together to contribute in the construction of a charity hospital. But every month four people step out of this plan. Due to this the task is completed in half more year instead of one year. Then how many people were originally involved in this plan?

**Answer:**

Let the total number of people = x

Then,

$$12x = (x + (x-4) + (x-8) + (x-12) + (x-16) + (x-20) + \dots \text{ 18 times})$$

$$12x = 18x - 4(1+2+3+\dots+17)$$

$$6x = (4 \times 17 \times 18)/2$$

$$x = 102$$

**23.** Find the percentage by which the volume of the circular cylinder change assuming that the radius and the height of the circular cylinder decreases by 20%?

**Answer:**

$$\text{Volume} = \pi r^2 h$$

Let the radius and height = 10 cm

$$\text{So area} = \pi \times 10 \times 10 \times 10 = 1000 \pi \text{ cm}^3$$

After decrease

$$\text{New radius} = 10 - 20 \times 10 / 100 = 8 \text{ cm}$$

$$\text{New height} = 10 - 20 \times 10 / 100 = 8 \text{ cm}$$

$$\text{New volume} = \pi \times 8 \times 8 \times 8 = 512 \pi \text{ cm}^3$$

$$\text{Decreased volume} = 488 \pi \text{ cm}^3$$

$$\text{Percentage decrease} = 488\pi \times 100 / 1000\pi = 48.8\%$$

**24.** A cyclist, cycling on a road, passes a man who was walking at the rate of 4 km/hr in the same direction. The man could see the cycle for 12 min and it was visible to him up to a distance of 1.2 km. What was the speed of the cycle?

**Answer:**

Let the speed of cycle be x km/h.

Speed of man = 4 km/h

Relative speed =  $(x-4)$  km/h

$$\text{Therefore, } (x-4) \times 12 / 60 = 1.2$$

$$x - 4 = 6$$

$$x = 10 \text{ km/h}$$

**25.** A man can walk up a moving "UP" escalator in 20sec and walk down this moving "UP" escalator in 60sec.Walking speed is same in case of both upwards and downwards.How much time will he take to walk up the escalator,when the escalator is stationary?

**Answer:**

Assume speed of escalator=x

Speed of man=y

Assume length of escalator=120

$$\text{Then } y+x=120/20=6$$

$$y-x=120/60=2$$

$$\text{on solving } y=4, x=2$$

Time taken by man when escalator is stationary= $120/4=30$ sec

**26.** If a 5 digit number is formed with digits 1,2,3,4 and 5.What is the probability that the number is divisible by 10,if repetition is not allowed.

**Answer:**

Total numbers= $5!=120$

For any number to be divisible by 10 the last digit has to be zero,which is not in any case



**Answer:**

20 w in 12 days, so 30 w in  $20 \times 12 / 30 = 8$  days

24 c in 15 days, so 18 c in  $24 \times 15 / 18 = 20$  days

So they will complete the work in  $20 \times 8 / [20+8] = 40/7$  days

**36. Can A contains 20% water and rest milk. Can B contains 40% water. How much milk should be taken from both the cans and mix in can C to get 15 litres of milk such that the ratio of water to milk in can C is 3 : 7?**

**Answer:**

Milk in can A is 80% or  $80/100 = 4/5$

Milk in can B is 60% or  $60/100 = 3/5$

Milk in final can C =  $7/(3+7) = 7/10$

So by Alligation method

$$\begin{array}{cc} 4/5 & 3/5 \\ \cdot & 7/10 \\ 1/10 & 1/10 \end{array}$$

which gives 1 : 1

so milk from can A is  $1/2 \times 15 = 7.5$  l

**37. The curved surface area of a cylindrical pillar is  $616 \text{ m}^2$  and its volume is  $2156 \text{ m}^3$ . Find the ratio of its diameter to its height.**

**Answer:**

$$\pi r^2 h / 2\pi rh = 2156 / 616$$

So, radius,  $r = 7$  m

$$2 \times 22/7 \times 7 \times h = 616$$

So, height  $h = 14$

$$\text{Ratio: } 2r/h = 14/14 = 1/1$$

**38. The average age of 10 men increases by 1.5 years when a new person comes in place of one of them whose age is 34 years. What is the age of the new person?**

**Answer:**

$$\text{Total age increased} = 10 \times 1.5 = 15 \text{ years}$$

$$\text{So age of new person} = 34 + 15 = 49 \text{ years}$$

**39. In a box, there are 6 black, 4 blue and 2 red marbles. One marble is picked up randomly. What is the probability that it is neither black nor red?**

**Answer:**

Neither black nor red means the ball should be blue

$$\text{So probability} = {}^4C_1 / {}^{12}C_1 = 4/12 = 1/3$$

**40. The average age of Abhilasha and Aadhira is 35 years. If Aaloka replaces Abhilasha, the average age is 31 years, if Aaloka replaces Aadhira average age is 36 years. If the average age of Aditi and Aashirya is half of average age of Abhilasha, Aadhira and Aaloka. then average age of all the five people is**

**Answer:**

Abhilasha, Aadhira, Aaloka, Aditi, Aashirya – X, Y, Z, P, Q

$$X + Y = 35 * 2 = 70 \quad (1)$$

$$Z + Y = 31 * 2 = 62 \quad (2)$$

$$X + Z = 36 * 2 = 72 \quad (3)$$

From (1) (2) and (3)

$$X = 40; Y = 30; Z = 32$$

$$\text{Average age of P and Q} = 1/2 * [(X + Y + Z)/3] = 102/6 = 17$$

$$\text{Sum of the age of P and Q} = 34$$

$$\text{Average age of all the five people} = (34 + 102)/5 = 27.2$$

**41. A bag contains 6 red balls, 11 yellow balls and 5 pink balls. If two balls are drawn at random from the bag, one after another, what is the probability that the first ball is red and the second ball is yellow?**

**Answer:**

$$\text{Total of balls} = 6 + 11 + 5 = 22$$

$$n(S) = {}^{22}C_2 = (21 \times 22) / 2 = 231$$

$$\text{Now, } n(E) = {}^6C_1 \times {}^{11}C_1 = 6 \times 11 = 66$$

$$P(E) = n(E)/n(S) = 66/231 = 6/21 = 2/7$$

**42. The sum of the radius and the height of a cylinder is 19m. The total surface area of the cylinder is  $1672 \text{ m}^2$ , what is the volume of the cylinder? (in  $\text{m}^3$ )**

**Answer:**

Let the radius of the cylinder be  $r$  and height be  $h$ .

Then,  $r + h = 19 \dots \text{(i)}$

Again, total surface area of cylinder =  $(2\pi rh + 2\pi r^2)$

Now,  $2\pi r(h + r) = 1672$

or,  $2\pi r \times 19 = 1672$

or,  $38\pi r = 1672, \pi r = (1672/38) = 44\text{m}, r = (44 \times 7) / 22 = 14$

Height =  $19 - 14 = 5\text{m}$

Volume of cylinder =  $\pi r^2 h = (22/7) \times 14 \times 14 \times 5 = 14\text{m} = 22 \times 2 \times 14 \times 5 = 3080\text{m}^3$

**43. The ratio of the speed of the boat upstream to the speed of the boat downstream is 2 : 3. What is the speed of the boat in still water if it covers 42 km downstream in 2 hours 20 minutes? (in km/h)**

**Answer:**

Let the speed of the boat in still water be  $x$  and that of the current be  $y$ .

Then, downstream speed =  $x + y$  and upstream speed =  $x - y$

Now, downstream speed =  $42 / [2 \frac{20}{60}] = (42 \times 3) / 7 = 18\text{ km}$

$x+y=18$

Again,  $3 : 18, 2 : 12$

(As ratio of downstream to upstream is 2 : 3)

$x - y = 12$  Solving (i) and (ii), we get

$$(x+y=18) + (x - y = 12) = 2x = 30$$

$$x = 15 \text{ kmph}$$

Hence speed of the boat 15 kmph

**44. 35 men complete a piece of work in 16 days and 20 women complete the same piece of work in 30 days. What is the ratio of the amount of work done by 40 men in 1 day to the amount of work done by 15 women in 1 day?**

**Answer:**

35 men complete the work in 16 days.

1 man completes the work in  $16 \times 35$  days,

32 men complete the work in  $(16 \times 35)/40 = 14$  days.

Again, 20 women complete the same piece of work in 30 days.

1 woman completes the same piece of work in  $20 \times 30$  days.

15 women can complete the work in  $(20 \times 30)/15 = 40$  days.

$$\text{Ratio} = 1/14 : 1/40 = 40 : 14 = 20 : 7$$

**45. A man sold an article for Rs. 6800 and incurred a loss. Had he sold the article for Rs. 7850, his gain would have been equal to half of the amount of loss that he incurred. At what price should he sell the article to have 20% profit?**

**Answer:**

Let the cost price be  $x$ .

$$\text{Then, loss} = (x - 6800)$$

$$\text{Again, profit} = (7850 - x)$$

$$\text{Now, } (7850 - x) = (x - 6800)/2 \text{ or, } 15700 - 2x = x - 6800$$

$$\text{or, } 3x = 15700 + 6800 = 22500 \Rightarrow x = 22500/3 = 7500$$

$$\text{Selling price} = (7500 \times 120)/100 = \text{Rs. 9000}$$

**46. A bought a certain quantity of bananas at a total cost of Rs. 1500. He sold 1/3 of these bananas at 25% loss. If he earns an overall profit of 10%, at what percentage profit did A sell the rest of the bananas?**

**Answer:**

$$\text{Total CP} = 1500$$

$$\text{Total SP} = 1500 + 10\% \text{ of } 1500 = 1500 + 150 = 1650$$

$$\text{CP of } 1/3 \text{ of bananas} = 1500/3 = \text{Rs.500}$$

SP of 1/3 of bananas at 25% loss

$$= 500 - [(500 \times 25 / 100)] = 500 - 125 = 375$$

$$\text{SP of the rest of bananas} = 1650 - 375 = 1275$$

$$\text{Now, CP of the rest of bananas} = 1500 - 500 = 1000$$

$$\text{Profit on the rest of bananas} = 1275 - 1000 = 275$$

$$\% \text{ of profit on the rest of bananas} = (275/1000) \times 100 = 27.5\%$$

**47. A tank has two inlets: P and Q. P alone takes 6 hours and Q alone takes 8 hours to fill the empty tank completely when there is no leakage. A leakage was caused which would empty the full tank completely in 'X' hours when no inlet is open. Now, when only inlet P was opened, it took 15 hours to fill the empty tank completely. How much time will Q alone take to fill the empty tank completely? (in hours)**

**Answer:**

$$(1/P) - (1/X) = (1/15)$$

$$\text{Or, } (1/6) - (1/X) = (1/15) \quad (P = 6 \text{ hours})$$

$$\text{Or, } (1/X) = (1/6) - (1/15) = (10-4)/60 = 1/10$$

$$x = 10 \text{ hours}$$

Now,

$$(1/Q) - (1/10) = (1/8) - (1/10) = (5-4)/40 = 1/40$$

Hence, Q fills the tank in 40 hours.

**48. At present, the ratio of the ages of A to B is 3 : 8; and that of A to C is 1 : 4. Three years ago, the sum of the ages of A, B and C was 83 years.**

**What is the present age (in years) of C?**

**Answer:**

According to the question, A : B = 3 : 8

$$A : C = 1 : 4$$

$$B : A = 8 : 3$$

$$A : C = 1 : 4$$

$$8 : 3 : 12$$

$$\text{Sum} = 8x + 3x + 12x = 23x$$

$$\text{Now, } 23x = 92$$

$$x = 4$$

$$\text{Hence the present age of C} = 12x = 12 \times 4 = 48 \text{ years}$$

**49. The sum invested in Scheme B is thrice the sum invested in Scheme A. The investment in Scheme A is made for 4 years at 8% p.a. simple interest and in Scheme B for 2 years at 13% p.a. simple interest. The total interest earned from both the schemes is Rs.1320. How much amount was invested?**

**Answer:**

Let the amount invested in scheme A be Rs.x and that in B be Rs. 3x.

$$\text{Then, } [(x \times 4 \times 8)/100] [((3x \times 2 \times 13)/100)] = 1320$$

$$\text{Or, } (32x/100) + (78x/100) = 1320$$

$$110x/100 = 1320$$

$$x = (1320 \times 100) / 110 = \text{Rs. 1200}$$

**50. Kim and Om are travelling from point A to B, Which are 400 km apart. Travelling at a certain speed Kim takes one hour more than Om to reach point B. If Kim doubles her speed she will take 1 hour 30 mins less than Om to reach point B. At what speed was Kim Driving from point A to B? (in kmph)**

**Answer:**

Let the speed of Kim be x and that of Om be y.

$$\text{Then, } (400/x) - (400/y) = 1$$

$$\text{Let } 1/x = u \text{ and } 1/y = v$$

$$400u - 400v = 1 \quad \dots(\text{i})$$

$$\text{Again, } (400/y) - (400/2y) = 3/2$$

$$400v - 200u = (3/2)$$

$$\text{Or, } 800v - 400u = 3 \quad \dots(\text{ii})$$

Solving (i) and (ii), we get

$$(400u - 400v = 1) + (-400u + 800v) = 400v = 4$$

$$v = (4/400) = (1/100) \text{ km}$$

$$y = 100 \text{ km}$$

$$\text{now, } (400/x) - (400/100) = 1$$

$$\text{or, } (400/x) = 5$$

$$x = 80 \text{ kmph}$$

**51. Find the number of words formed with the letters of the word 'BOOKS' beginning with B and ending with S.**

**Answer:**

We have to arrange 3 letters (O, O and K) out of which 'O' occurs two times. So, reqd no. =  $3! / 2! = 3$  ways

**52. A box contains 5 Sony, 6 Samsung and 4 Sandisk pen drives. 3 pen drives are drawn at random. What is the probability that they are not of the same company?**

**Answer:**

The total number of pen drives =  $5 + 6 + 4 = 15$

$$n(S) = 15C3 = (15 \times 14 \times 13) / (3 \times 2) = 455$$

Now, 3 pen drives out of 15 pen drives can be drawn in 455 ways.

If all 3 pen drives are of the same company

It Can be done in  $5C3 + 6C3 + 4C3 = 10 + 20 + 4 = 34$  ways

Probability that all 3 pen drives are not of the same company =  $1 - (34/455) = (421/455)$

**53. The base of a triangular field is 660 metres and height 440 metres. If the charges for watering the field are at the rate of Rs.26.5 per sq hectometre, find the total cost to water the triangular field.**

**Answer:**

Area of the field =  $(\text{Base} \times \text{Height}) / 2 = (660 \times 440)/2$  sq metre =  $(660 \times 440)/(2 \times 100 \times 100)$  sq metre = 14.52 sq hectometres

Cost of watering 1 sq hectometre = Rs.26.5

Cost of watering the field =  $26.5 \times 14.52 = \text{Rs.}384.78$

**54. In a mixture of milk and water the proportion of milk by weight was 70%. If in a 250-gm mixture 100 gm water was added, what would be the percentage of water?**

**Answer:**

Proportion of milk in the mixture =  $250 \times (70/100) = 175\text{gm}$

Water = 75 gm

After 100 gm water added in mixture the percentage of water =  $(75 + 100) / (250 + 100) \times 100 = (175/350) \times 100 = 50\%$

**55. Two pipes can fill a tank in 28 and 24 minutes respectively and a waste pipe can empty 5 gallons per minute. All three pipes working together can fill the tank in 16 minutes. How much time is taken by the waste pipe to empty the full tank?**

**Answer:**

Let the capacity of the tank be 336 litres

LMC of (28, 24 and 16 = 336)

Waste pipe empties the tank in  $(12 + 14 - 21)$  5 litres per minute

Waste pipe empties the tank in  $(336/5) = 67.2$  minutes

**56. The average score of a cricket player after 24 innings is 25 and in the 25th innings the player scores 25 runs. In the 26th innings what minimum number of runs will be required to increase his average score by 2 than it was before the 26th innings?**

**Answer:**

The average score of a cricket player after 25th Innings =  $(24 * 25 + 25) / 25 = 25$

Required Run = X

$(625 + X)/26 = 27$

$X = 26 * 27 - 625 = 77$

**57. There are two vessels P and Q filled with cooking oil with different prices and with volumes 160 and 40 liters respectively. Equal quantities are drawn from both P and Q in such a manner that the cooking oil drawn from P is poured in into Q and oil drawn from Q is poured into P. If the price per liter becomes equal in both vessels. What is the (equal) quantity that was drawn from both P and Q?**

**Answer:**

Vessel (P) Vessel (Q)

Quantity= 160 l Quantity= 40 l

rate – p rate – q

Let quantity taken out from both = a litres

'a' litres removed from p and 'a' litres added from q

So rate of vessel P after removal and then addition =  $[(160-a)p + aq]/160$

Similarly rate of vessel Q after removal and then addition =  $[(40-a)q + ap]/40$

Now equate these equations

$[(160-a)p + aq]/160 = [(40-a)q + ap]/40$

Solving, we get a = 32 l

**58. A book seller sold a book at Rs. 56 in such a way that his percentage profit is same as the cost price of the book. If he sells it at twice the percentage profit of its previous percentage profit then new selling price will be?**

**Answer:**

CP = x

SP =  $x + (x * x)/100 = 56$

$x^2 + 100x - 5600 = 0$

$x = 40$

SP =  $40 + (40 * 80)/100 = \text{Rs. }72$

**59. A circular road runs round a circular playground. If the difference between the circumferences of the outer circle and the inner circle is 132 metres, then what is the width of the road?**

**Answer:**

Width of the Road = R – r

$2\pi R - 2\pi r = 132$

$R - r = 132 * (7/44) = 21 \text{ m}$

**60.** There are two concentric circles whose areas are in the ratio of 16:25 and the difference between their diameters is 8 m. Find out the area of the inner circle?

**Answer:**

$$r^2/R^2 = 25/16 \Rightarrow r/R = 5/4$$

$$5x - 4x = 4$$

$$x = 4$$

Inner Radius = 16m

$$\text{Area of Inner Circle} = \pi (16 * 16) = 256\pi m^2$$

**61.** Two-thirds of a commodity was sold at a profit of 5% and the remainder at a loss of 2%. If the total profit was Rs.400, what was the cost of the commodity?

**Answer:**

Let the cost of commodity be Rs.x

$$\text{Then, } (2x/3) \times 1.05 + (1x/3) \times 0.98 = x + 400$$

$$\text{Or, } (1/3) \times (3.08) = x + 400$$

$$\text{Or, } 0.8x = 400 \times 3$$

$$\text{Or, } (1200 / 0.08) = (120000 / 8)$$

$$x = \text{Rs.}15000$$

**62.** A car covers a distance between A and B in 45 minutes. If the speed of the car is reduced by 8 km per hour then the same distance is covered in 49.5 minutes. What is the distance between A and B?

**Answer:**

Let the distance between A and B be d km

$$\text{Then, } [d/(45/60)] - [d / (49.5/60)] = 8$$

$$\text{Or, } 4d/3 - 120d / 99 = 8$$

$$\text{Or, } (132d - 120d) / 99 = 8$$

$$D = (8 \times 99) / 12 = 66 \text{ km}$$

**63.** If the difference between the simple interest and the compound interest earned on a certain amount @ 12% at the end of 3 years is Rs.336.96, then what is the amount?

**Answer:**

$$D = \text{Rs.}336.96$$

$$T = 3 \text{ years}$$

$$R = 12\%$$

$$P = \text{Difference} \times (100)^3 / r^2 (300 + r) = (336.96 \times 1000000) / [144(300+12)] = 336960000/44928 = \text{Rs.} 7500$$

**64.** A race track is in the form of a ring whose inner circumference is 396m and outer circumference is 418m. Find the width of the track.

**Answer:**

Circumference of outer track 418  $2\pi R = 418$

$$R = (418 \times 7) / 44 = 66.5$$

Circumference of inner track = 396  $2\pi r = 396$

$$r = (396 \times 7) / 44 = 63$$

width of the track =  $66.5 - 63 = 3.5 \text{ m}$

Note: instead of calculating in two parts perform a single calculation like

$$\text{Width} = R - r = 7/44 (418 - 396) = (7/44) \times 22 = 3.5 \text{ m}$$

**65.** The average age of Ram, Shyam and Ghanshyam is 26years. 3 year ago, average age of Ram and Shyam was 21yrs. 4 years hence the average age of Shyam and Ghanshyam will be 28 years. Find the present age of Shyam?

**Answer:**

average age of all three = 26

$$\therefore \text{total age of all three} = 26 \times 3 = 78$$

3yrs ago, average age of Ram and Shyam = 21

$$3yrs ago, \text{total age of Ram and Shyam} = 21 \times 2 = 42$$

$$\therefore \text{present total age of Ram and Shyam} = 42 + 6 = 48$$

$$\therefore \text{present age of Ghanshyam} = 78 - 48 = 30$$

Similarly present age of Ram=30

hence, Present age of shyam is =  $78 - 30 - 30 = 18 \text{ years}$

**66.** If another guy Danpat joins in who is 2 year younger than Esha and the average of Esha and Raman was 27,two years ago.Also it is given that average of Raman and Ram 4 year hence will be 25.So what is average of present age of Danpat,Raman and Esha?

**Answer:**

Ram age 4 year hence will be 34

Average of Ram and Raman 4 year hence=25

Total age of Ram and Raman 4 year hence=50

Therefore Raman age 4 year hence will be=16

Raman present age=12

Raman age 2 year ago=10

Therefore esha age 2 year ago was=54-10=44

Esha current age=46

Danpat current age=44

Average of all three=(46+44+12)/3=34

**67. 36 women can do a work in X days and 30 men can do the same work in (X - 4) days. The ratio of work done by 10 men and 12 women in the same time is 2:1. What is the value of X?**

**Answer:**

$$M1D1T1/W1=M2D2T2/W2 \quad [men1*day1*time1/work1= men2*day2*time2/work2]$$

$$10M/2=12W/1$$

$$5M=12W \dots \dots \dots \text{(i)}$$

$$\text{Also } 36W*X=30M*(X-4)$$

From (i)

$$15M*X=30M*(X-4)$$

$$X=8$$

**68. A boat travelling at a speed of 60 kmph started at 3 p.m. when there was no current from point X for point Y which is 240 km apart. After some amount of time current started which delayed the entire journey by 15 minutes. Find the time at which current started if the speed of boat is 6 times to the speed of current?**

**Answer:**

As time is increased boat will be travelling against the current

$$t1+t2=17/4 \quad [t1=\text{time till no current}, t2=\text{time after current}]$$

$$60t1+50t2=240$$

$$\text{On solving } t1=11/4 \text{ hour}$$

$$\text{Hence current started at } 3+11/4=5:45 \text{ p.m}$$

**69. A boat takes 58 hours for travelling downstream from Point X to point Y and coming back to point Z midway between X and Y. If the speed of the stream is 4 kmph and speed of the boat in still water is 11 kmph, then what is the distance between X and Y?**

**Answer:**

$$\text{Speed downstream} = 11 + 4 = 15 \text{ kmph.}$$

$$\text{Speed upstream} = 11 - 4 = 7 \text{ kmph.}$$

Let distance between P and Q be 'x' km, then,

$$x/15 + (x/2)/7 = 58.$$

$$\text{i.e., } x/15 + x/14 = 58.$$

$$\text{Solving we get, } x = 420 \text{ km.}$$

**70. A boat takes 4 hours more while going back in upstream than in downstream when the distance between two places is 32 km and the speed of boat in still water is 6kmph. What must be the speed of boat in still water so that it can row downstream, 32km in 4 hours?**

**Answer:**

$$32/(6-R) - 32/(6+R) = 4$$

$$R = 2 \text{ kmph}$$

$$(B + 2) = 32/4$$

$$\text{Speed of boat in still water} = 6 \text{ kmph}$$

**71. A milkman mixes 20 litres of water with 80 litres of milk. After selling one-fourth of this mixture, he adds water to replenish the quantity that he has sold. What is the current proportion of water to milk ?**

**Answer:**

1/4th of the mixture is sold

1/4th of milk and 1/4th of water is sold.

$$= 3/4 \text{ th of milk} = (3/4) \times 80 = 60 \text{ litres of milk is remaining and rest part } 100 - 60 = 40 \text{ litres is water (as water is added in place of milk)}$$

$$\text{Reqd ratio} = 40 : 60 \text{ or } 2 : 3$$

**72. Ajay and Bala invest Rs. 4000 and Rs. 5000 in a business. Ajay receives Rs. 20 per month out of the profit as remuneration for running the business and the rest of profit is divided in proportion to the investment. In a year Ajay totally receives Rs. 672. What does Bala receives?**

**Answer:**

Annual profit = x

Ratio of profit share between Ajay and Bala = 4 : 5

Ajay gets:  $20 * 12 + 4/9 * x = 672$

Solving, we get,  $x = 108 * 9$

So Bala gets  $= 5/9 * x = 5/9 * 108 * 9 = \text{Rs } 540$

**73. Angel, Beaula and Catherine entered into a partnership in a business. Angel got  $5/7$  of the profit. Beaula and Catherine distributed the remaining profit equally. If Catherine got Rs.500 less than Angel, then the total profit was?**

**Answer:**

Total Profit =  $x$

Angel's Share =  $(5x/7)$

Remaining Profit =  $x - (5x/7) = (2x/7)$

Beaula and Catherine distributed the remaining profit equally-  $x/7, x/7$

$$(5x/7) - (1x/7) = 500$$

$$(4x/7) = 500$$

$$x = 500 * (7/4) = 875$$

**74. A shopkeeper buys an article at a discount of 20% on the listed price from a wholesaler. The shopkeeper marks up the price by 15% on the listed price. A buyer pays Rs.3795 to get it after paying sales tax at the rate of 10% on the price asked for. Find the profit percentage of the shopkeeper.**

**Answer:**

Let the listed price = Rs. 100

CP of shopkeeper =  $100 - 20 = \text{Rs. } 80$

Marked price by shop keeper =  $100 + 15 = \text{Rs. } 115$

Now,  $115 = 3795 * (100/110) = 3450$

$80 = (3450/115) * 80 = \text{Rs. } 2400$

CP of shopkeeper = Rs. 2400

Profit =  $3450 - 2400 = 1050$

Profit % =  $(1050 / 2400) * 100 = 43.75\%$

**75. A sum amounts to Rs.10580 in 2 years and to Rs.12167 in 3 years compounded annually. Find the sum and the rate of interest per annum.**

**Answer:**

$$12167 = 10580 [1 + (r/100)]^2$$

$$\text{Or, } (12167/10580) = 1 + (r/100)$$

$$\text{Or, } (1587/10580) = r/100$$

$$r = (1587 * 100) / 10580 = 15\%$$

$$\text{sum} = (10580 * 100 * 100) / (115 * 115) = \text{Rs. } 8000$$

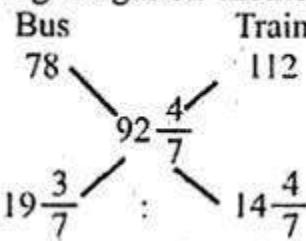
Sum = Rs. 8000, Rate = 15%

**76. Mohit travels 972 km in 10.5 hours in two stages. In the first part of the journey, he travels by bus at the speed of 78 km, per hour. In the second part of the journey, he travels by train at the speed of 112 km/hr. How much distance does the travel by train?**

**Answer:**

We use only alligation on speed (km/hr) to get ratio of time spent in bus and train. overall speed =  $(972/10.5) = (1944/21) = 648/7$

### Using alligation method



$$136/7 : 102/7 \rightarrow 136 : 102$$

Or 4 : 3

Time spent in train =  $10.5 (3/7) = 4.5 \text{ hours}$

Distance travelled by train =  $112 * 4.5 \text{ hours} = 504 \text{ km}$

**77. A contractor undertook to do a certain work in 75 days and employed 48 men to do it. After 55 days he found that only  $(2/3)$  of the work was done. How many more men must be employed so that the work may finished in time?**

**Answer:**

Apply  $M_1 D_1 / W_1 = M_2 D_2 / W_2$

$$\text{Or, } (48 * 55) / (2/3) = (M * 20) / (1/3)$$

$M = 66 \text{ men}$

Reqd more men =  $66 - 48 = 18 \text{ men}$

**78.** 49 pumps can empty a reservoir in  $17/2$  days working 6 hours a day. If 119 pumps are used for 7 hours a day then in how many days will the same work be completed?

**Answer:**

Let the required number of days be  $x$ .

$$49 \times (17/2) \times 6 = 119 \times 7 \times x$$

$$x = 3 \text{ days}$$

**79.** 6 kg of an alloy A is mixed with 8 kg of alloy B. If alloy A has lead and tin the ratio 1 : 3 and B has tin and copper in the ratio 2 : 3, then what is the amount of tin in the new alloy?

**Answer:**

$$\text{Quantity of tin in alloy A} = 6 \times (3/4) = 4.5 \text{ kg}$$

$$\text{Quantity of tin in alloy B} = 8 \times (2/5) = 3.2 \text{ kg}$$

$$\text{Quantity of tin in the new alloy} = 4.5 + 3.2 = 7.7 \text{ kg}$$

**80.** There are 5 boys and 4 girls. In how many ways can they be seated in a row so that all the girls do not sit together?

**Answer:**

$$\text{Total number of persons } 5 + 4 = 9$$

When there is no restriction they can be seated in a row in  $9!$  Ways. But if all the 4 girls sit together, we can consider the group of 4 girls as one person. Therefore, we have only  $5 + 1 = 6$  persons

$$\text{Number of ways} = 6! \text{ Ways}$$

But 4 girls can be arranged among themselves in  $4P4 = 4!$  Ways

$$\text{Reqd no.of ways in which all the 4 girls do not sit together} = 9! - 6! \times 4!$$

$$= 9 \times 8 \times 7 \times 6! - 6! \times 24 = 6! (504 - 24) = 720 \times 480 = 720 \times 480 = 345600$$

**Directions (81 – 85)** Study the following passage and answer the questions accordingly.

Five members of a family live in Mumbai namely A, B, C, D and E. A and B together can do a piece of work in 80 days. B and C together can do a piece of work in 60 days. C and D together can do a piece of work in 40 days. D and E together can do a piece of work in 20 days. A alone can do a piece of work in 120 days.

**81.** If A, B and C together can do a piece of work in 'x' days then how much work could be done in the same days when E do the same work?

**Answer:**

According to question,

$$(A+B+C)'s \text{ one day work} = 1/120 + 1/240 + 1/80 = (2+1+3)/240 = 6/240 = 1/40$$

Required Answer, E alone works to finish,

$$E = (1/40)/(3/80) = 1/40 \times (80/3) = 2/3 \text{ of the work}$$

**82.** B, C and D can complete a piece of work in 'x' days. If all of them work together and after three days B left and the remaining work be completed by C and D with help of E. In how many days can C, D and E do the remaining work?

**Answer:**

$$(B+C+D)'s \text{ one days work} = 1/240 + 1/80 + 1/80 = 7/240$$

According to question,

$$(B+C+D)'s \text{ three days work} = 7/240 \times 3 = 7/80$$

Then, remaining work,  $= 1 - 7/80 = 73/80$

Required answer is,

$$(73/80)/(1/80 + 1/80 + 3/80) = 73/80 \times 80/5 = 73/5 = 14 \frac{3}{5} \text{ days}$$

**83.** A, C and D can do a piece of work in x, y and z days, respectively. They work alternately in a way that first day A, second day C and third day D, fourth day A and so on. How many days will be needed to complete the work in this way?

**Answer:**

$$A's \text{ one day work} = 1/120;$$

$$C's \text{ one day work} = 1/80;$$

$$D's \text{ one day work} = 1/80$$

According to question,

$$\text{work done in first 3 days} = 1/120 + 1/80 + 1/80 = (2+3+3)/240 = 8/240 = 1/30$$

Time taken to complete  $1/30$  part of work = 30 days

Required Answer, (Time taken to complete the whole work)  $= 3 \times 30 = 90$  days

**84.** A, B and C can do a piece of work in 'x' days, 'y' days and 'z' days respectively. As they were ill, they could do 90%, 75% and 80% of their efficiency, respectively. How many days will they take to do the work together?

**Answer:**

According to question,

$$A's \text{ one day work} = 90\% \text{ of } 1/120 = 90/100 \times 1/120 = 3/400$$

$$B's \text{ one day work} = 75\% \text{ of } 1/240 = 75/100 \times 1/240 = 1/320$$

$$C's \text{ one day work} = 80\% \text{ of } 1/80 = 80/100 \times 1/80 = 1/100$$

$(A+B+C)$ 's one day's work =  $3/400 + 1/320 + 1/100 = (12+5+16)/1600 = 33/1600$

Hence, time taken by them to complete the work =  $1600/33 = 48 \frac{16}{33}$  days

**85. C can do  $\frac{1}{4}$  of a work in 80 days, D can do 40% of the same work in 80 days and E can do  $\frac{1}{3}$  of a work in  $\frac{800}{3}$  days. Who will complete the work first?**

**Answer:**

Time taken to complete the work by C =  $80 \times 4 = 320$  days

Time taken to complete the work by D =  $80 \times 100/40 = 200$  days

Time taken to complete the work by E =  $800/3 \times 3 = 800$  days

**86. A box contains 6 black and 14 white balls, out of which 3 black and 5 white balls are defective. If we choose two balls at random, what is the probability that either both are white or both are non-defective?**

**Answer:**

Required probability -  ${}^{14}C_2 / {}^{20}C_2 + {}^{12}C_2 / {}^{20}C_2 - {}^9C_2 / {}^{20}C_2 = 121/190$

**87. In a class, the average age of some boys is 16 years, and average age of 16 teachers is 56 years. If the average age of the combined group of all the teachers and boys is 20, then the number of students is**

**Answer:**

Use allegation method

number of boys 'x' : number of teacher '16'

.	16	56
.	20	
.	$(56-20)=36$	$(20-16)=4$
.	So $36/4 = 9/1$	

Now,  $x/16 = 9/1$ ,  $x=144$

**88. If the CI on a certain sum for 2 yrs at 10% per annum is Rs. 3150, what would be the SI on same rate for same time?**

**Answer:**

Let principal = Rs x

CI for 2 years in % = 21% (using successive method)

21% of x = 3150

x = 15000

SI =  $15000 \times 2 \times 10/100 = \text{Rs.} 3000$

**89. A started a business with initial investment of rs.12000, after 3 month B invest rs.15000 in this business. After 8 month from starting A withdrew one-fourth of his investment and B further invest  $1/15$  part of his investment. If at the end of one year the difference between the shares of profit of both is 700, what is the B's profit share?**

**Answer:**

$$(12000 \times 8 + 9000 \times 4) : (15000 \times 5 + 16000 \times 4)$$

132 : 139

Difference in profit sharing ration is =  $139x - 132x = 7x$

Given  $7x = 700$ , So  $x = 100$

B's profit share =  $139x = 13900$

**90. There are three taps A, B, and C. A takes thrice as much time as B and C together to fill the tank. B takes twice as much time as A and C to fill the tank. In how much time can the Tap C fill the tank individually, if they would require 10 hours to fill the tank, when opened simultaneously?**

**Answer:**

Let A, B, C fills a, b, c units per hour.

$$\text{Total units} = 10 * (a+b+c)$$

$$\text{Now}, 3a = b+c \text{ and } 2b = a+c$$

Solving both,

$$b = 4c/5 \text{ and } a = 3c/5$$

$$\text{total units of work} = 10c * (4/5 + 3/5 + 1) = 24c$$

done by C in  $24c/c = 24$  hours

**91. Mano prepares a budget to visit London. However, he spends 12% of his budget on the first 10% days of his travel when he stays in the city. He knows that he has to spend another 35% of days in city itself, after which he would travel to the country side. What should be the minimum decrease in spending in country side as a percentage of his spending in city so as to complete his travel on the initial budget itself?**

**Answer:**

Budget spends on 10% of days = 12%

$$\text{so, in } 1\% \text{ of days} = \frac{12}{10}$$

$$35\% \text{ remaining days in city} = \frac{12}{10} \times 35 = 42\%$$

$$\text{Overall budget spent on 45% of days in city} = \frac{12}{10} \times 45 = 54\%$$

Days remaining = 55%, Budget remaining = 46%

$$\text{In } 1\% \text{ of day remaining, he can spend} = \frac{46}{55} \text{ of budget}$$

$$\text{Therefore, \% decrease required} = \frac{\frac{12}{10} - \frac{46}{55}}{\frac{12}{10}} \times 100 = 30.3\%$$

92. A merchant can buy goods at the rate of Rs.20 per good. The particular good is part of an overall collection and the value is linked to the number of items that are already on the market. So, the merchant sells the first good for Rs.2, second one for Rs.4, third for Rs.6... and so on. If he wants to make an overall profit of at least 40%, what is the minimum number of goods he should sell?

Answer:

Let us assume he buys  $n$  goods.

$$\text{Total CP} = 20n$$

$$\text{Total SP} = 2 + 4 + 6 + \dots n \text{ terms}$$

Total SP should be at least 40% more than total CP

$$2 + 4 + 6 + 8 + \dots n \text{ terms} \geq 1.4 \times 20n$$

$$2(1 + 2 + 3 + \dots n \text{ terms}) \geq 28n$$

$$n(n+1) \geq 28n$$

$$n^2 - n \geq 28n$$

$$n^2 - 27n \geq 0$$

$$n \geq 27$$

He should sell a minimum of 27 goods.

93. A train meets with a minor accident after travelling 100 km from starting point A and then proceeding at a reduced speed of three-fourth of original speed arrives at its destination B 90 minutes late. Had the accident occurred 60 kms further on, the train would have reached the destination 15 minutes earlier. The original speed of the train and distance AB are.

Answer:

Original speed is,

$$\frac{60}{\frac{3}{4} \times S} = \frac{60}{S} + \frac{15}{60}$$

$$\frac{80}{S} - \frac{60}{S} = \frac{1}{4}$$

$$S = 80 \text{ km per hr}$$

Total distance is,

$$\frac{x}{60} - \frac{x}{80} = \frac{90}{60}$$

$$x \left( \frac{1}{3} - \frac{1}{4} \right) = 30$$

$$x \left( \frac{1}{12} \right) = 30$$

$$x = 360$$

$$\text{Total distance AB} = 100 + 360 = 460 \text{ km}$$

94. Pratap borrowed a sum of money from Arun at simple interest, at the rate of 12% per annum for the first three years, 16% per annum for the next five years and 20% per annum for the period beyond eight years. If at the end of 11 years, the total interest is Rs.6080 more than the sum, the sum borrowed was:

Answer:

Let the sum be borrowed = Rs.100

Then total interest =  $12 \times 3 + 16 \times 5 + 20 \times (11 - 8)$

$$= 36 + 80 + 60 = \text{Rs.}176$$

$$\text{Difference} = 176 - 100 = 76$$

$$\therefore \text{Principal} = \frac{100}{76} \times 6080 = \text{Rs.}8000$$

95. A man buys a scooter on making cash down payment of Rs.16224 and promises to pay two more yearly installments of equivalent amounts at the end of first year and second year. If the rate of interest is 4% per annum, compounded annually, the cash value of the scooter is:

Answer:

Cash down payment = Rs.16224

$$1 + \frac{r}{100} = 1 + \frac{4}{100} = \frac{26}{25}$$

$$\therefore \text{Principal of the 1st instalment} = \frac{16224}{\frac{26}{25}}$$

$$= 16224 \times \frac{25}{26} = \text{Rs.}15600$$

$$\therefore \text{Principal of the second instalment} = \frac{16224}{\left(\frac{26}{25}\right)^2}$$

$$= 15600 \times \frac{25}{26} = 15000$$

$$\therefore \text{Principal of the scooter} = \text{Rs.}(16224 + 15600 + 15000) = \text{Rs.}46824$$

96. A student scored 23% of maximum marks and failed by 23 marks. But if he scores 43% of the marks in the same exam, he passes by 17 marks. What is the maximum marks of the exam?

Answer:

Let, maximum marks = x

$$(43-23)\% \text{ of } x = (23+17)$$

$$20\% \text{ of } x = 40$$

$$\text{Solving we get, } x = 200$$

97. If the price of sugar is increased by 20%, its expenditure gets decreased by 25%. What is the net effect on the total sale?

Answer:

Use successive method

$$20 + (-25) + (20)(-25)/100 = -10$$

98. A invested Rs.50000 for starting a venture and B joined his business with a capital of 65000 after 4 months. A get Rs.350 in every 2 months for his extra work. Find B's profit if A receives a total of Rs.62100 as his share.

Answer:

$$(50000*12) : (65000*8)$$

$$15 : 13$$

$$\text{Now, } (62100 - 350*6) = 60000$$

$$\text{B's profit} = 60000*13/15 = 52000$$

OR

Let after cutting  $350*6$  from A's profit, remaining amount is x. So

$$15/28 * x + 350*6 = 62100$$

$$\text{So total } x = 112000$$

$$\text{So B's profit} = 13/28 * 112000 = 52000$$

99. Two trains having equal speed take 10 seconds and 15 seconds respectively to cross a 250 meter long bridge. If the length of second train is 150 meters more than the first train, then find the speed of the trains?

Answer:

Let, length of first train = x

$$(x + 250)/10 = (x + 150 + 250)/15$$

Solving, we get x=50

$$\text{Speed} = 300/10 \text{ or } 450/15 = 30\text{m/s}$$

Convert this speed into km/h,  $30*18/5 = 108\text{km/h}$

**100.** Thirteen litres are drawn from a cask full of water and then it is filled with milk. Now thirteen litres of mixture are drawn and the cask is again filled with milk. The ratio of quantity of water now left in the cask to that of the milk in it is 16 : 9. How much does the cask hold?

**Answer:**

$$\text{Water} = 16$$

$$\text{Total mixture} = 16+9 = 25$$

$$\sqrt{25} = 5$$

Difference in ratio = 1

And this 1 is equal to 13. So total mixture is  $13 \times 5 = 65$

OR

Let  $x$  litres is total capacity of cask

Using formula, amount of water left in cask =  $x [1 - 13/x] 2$

$$[1 - 13/x] 2/x = 16/(16+9)$$

Solving we get,  $x = 65$

**101.** Raman Publishers buys a machine for Rs.50000. The rate of depreciation is 10%. Find the depreciated value of the machine after 4 years.

What is the average rate of depreciation?

**Answer:**

$$\text{Hence machine value after 4 years} = P \left(1 - \frac{R}{100}\right)^4$$

$$\therefore 50000 \left(1 - \frac{10}{100}\right)^4 = 50000 \times \frac{90}{100} \times \frac{90}{100} \times \frac{90}{100} \times \frac{90}{100} = 32805$$

$$\text{Amount of depreciation in four years} = \text{Rs. } (50000 - 32805) = 17195$$

Average rate of depreciation in four years,

$$\therefore \frac{17195}{50000} \times \frac{100}{4} = 8.59 \quad 8.6$$

**102.** A bank offers 10% interest rate compounded annually. A person deposits Rs.20,000 every year in his account. If he does not withdraw any amount, then how much balance will his account show after four years?

**Answer:**

According to the question,

$$20000 \text{ after 1st year} = 20000 \left(1 + \frac{10}{100}\right) = 20000 \times \frac{11}{10} = 22000$$

$$20000 \text{ after 2nd year} = 20000 \left(1 + \frac{10}{100}\right)^2 = 20000 \times \frac{11}{10} \times \frac{11}{10} = 24200$$

$$20000 \text{ after 3rd year} = 20000 \left(1 + \frac{10}{100}\right)^3 = 20000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} = 26620$$

$$20000 \text{ after 4th year} = 20000 \left(1 + \frac{10}{100}\right)^4 = 20000 \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} \times \frac{11}{10} = 29282$$

$$\text{Total amount after 4 years} = 22000 + 24200 + 26620 + 29282 = 102102$$

**103.** David invests Rs.7956 in the bank X and Y, so that X's amount at the end of 5 years is equal to Y's amount at the end of 7 years at 10 percent compounded annually. Find the amount invested by David in bank Y.

**Answer:**

*X's amount after 5 years = Y's amount after 7 years*

$$P_1 \left(1 + \frac{10}{100}\right)^5 = P_2 \left(1 + \frac{10}{100}\right)^7$$

$$\frac{P_1}{P_2} = \frac{\left(1 + \frac{10}{100}\right)^7}{\left(1 + \frac{10}{100}\right)^5} = \left(1 + \frac{10}{100}\right)^{7-5} = \left(1 + \frac{10}{100}\right)^2 = \frac{121}{100}$$

*Amount invested by David in bank Y = 7956 \times \left(\frac{100}{121+100}\right) = Rs.3600*

104. Messy borrows a certain sum from David at a certain rate of SI for 3 years. She lends this sum to Malar at the same rate of interest but compounded annually for the same period, that is 3 years. At the end of 3 years, she receives Rs.3300 as compound interest, but paid Rs.3000 as simple interest. What is the rate of interest? (Approximately)

Answer:

*According to the question,*

$$\text{Rate of interest} = \frac{3300 - 3000}{3000} \times 100 \times 2$$

$$i = \frac{300 \times 100 \times 2}{3000} = 20$$

*Answer = c 20*

105. The simple interest on a certain sum of money for 4 years at 10% per annum is half the compound interest on Rs.24000 for 2 years at 25% per annum. The sum placed on simple interest is

Answer:

$$CI = \left[ 24000 \left(1 + \frac{25}{100}\right)^2 - 24000 \right] = 24000 \times \frac{5}{4} \times \frac{5}{4} - 24000 = 37500 - 24000 = Rs.13500$$

$$\sum i = \frac{\left(Rs. \left(\frac{13500}{2}\right) \times 100\right)}{10 \times 4} = Rs.16875$$

*Answer = d 16875*

106. If compound interest on a sum for 4 years at 12% per annum is Rs.448062, then simple interest on the same sum at the same rate of interest and for the same period of time is?

Answer:

*Let the sum be Rs. P.*

$$\left[ P \left(1 + \frac{12}{100}\right)^4 - P \right] = 448062$$

$$P \left[ \left(\frac{28}{25}\right)^4 - 1 \right] = 448062$$

$$P | 614656 - 390625 | = | 390625 \times 448062 |$$

$$P = \frac{390625 \times 448062}{224301} = 780310$$

$$SI = \frac{780310 \times 12 \times 4}{100} = Rs.374549$$

**107. What is the difference between compound interests on Rs.20,000 for 1.5 years at 10% per annum compounded yearly and half-yearly?**

**Answer:**

The interest is compounded yearly.

$$CI = \left[ 20000 \times \left( 1 + \frac{10}{100} \right) \times \left( 1 + \frac{\frac{1}{2} \times 10}{100} \right) \right]$$

$$\therefore \left( 20000 \times \frac{110}{100} \times \frac{105}{100} \right) = 23100$$

When interest is compounded half-yearly,

$$CI = \left[ 20000 \times \left( 1 + \frac{\frac{10}{2}}{100} \right)^5 \right]$$

$$\therefore \left( 20000 \times \frac{105}{100} \times \frac{105}{100} \times \frac{105}{100} \right) = 23152.5$$

$$\text{Difference} = \text{Rs. } (23152.5 - 23100) = 52.5$$

**Answer = c. Rs.52.5**

**108. What annual payment will discharge a debt of Rs.7308 due in 3 years at the rate of 40% compound interest?**

**Answer:**

Let each instalment be Rs. x.

$$\therefore \frac{x}{\left( 1 + \frac{40}{100} \right)} + \frac{x}{\left( 1 + \frac{40}{100} \right)^2} + \frac{x}{\left( 1 + \frac{40}{100} \right)^3} = 7308$$

$$\therefore \frac{5x}{7} + \frac{25x}{49} + \frac{125x}{343} = 7308$$

$$x = \frac{7308 \times 343}{343} = 4599.346 = \text{Rs. } 4600$$

**109. A man borrowed Rs.30000 at 15% per annum simple interest and immediately lent the whole sum at 15% per annum compound interest.**

**What does he gain at the end of 3 years?**

**Answer:**

$$CI = \left[ 30000 \times \left( 1 + \frac{15}{100} \right)^3 - 30000 \right]$$

$$\therefore \left( 30000 \times \frac{23}{20} \times \frac{23}{20} \times \frac{23}{20} \right) - 30000 = 45626.25 - 30000 = 15626.25$$

$$SI = \frac{30000 \times 15 \times 3}{100} = 13500$$

$$Gain = CI - SI = 15626.25 - 13500 = 2126.25$$

**Answer = b. Rs.2126.25**

**110. The principal amounts to Rs.27000 in 4 years at 20% per annum in compound interest. Then find the principle?**

**Answer:**

According to the formula  $P = [A/(1 + r/100)^T] = 27000/(1 + 20/100)^4 = 27000 \times 5/6 \times 5/6 \times 5/6 \times 5/6 = 13020.83$

Therefore, Principal = 13020.83

**111. A box contains 5 Sony, 6 Samsung and 4 Sandisk pen drives. 3 pen drives are drawn at random. What is the probability that they are not of the same company?**

**Answer:**

The total number of pen drives =  $5 + 6 + 4 = 15$

$$n(S) = {}^{15}C_3 = (15 \times 14 \times 13) / (3 \times 2) = 455$$

Now, 3 pen drives out of 15 pen drives can be drawn in 455 ways.

If all 3 pen drives are of the same company

It can be done in  ${}^5C_3 + {}^6C_3 + {}^4C_3 = 10 + 20 + 4 = 34$  ways

Probability that all 3 pen drives are not of the same company =  $1 - (34/455) = (421/455)$

**112. The base of a triangular field is 660 metres and height 440 metres. If the charges for watering the field are at the rate of Rs.26.5 per sq hectometre, find the total cost to water the triangular field.**

**Answer:**

Area of the field =  $(\text{Base} \times \text{Height}) / 2 = (660 \times 440)/2$  sq metre =  $(660 \times 440)/(2 \times 100 \times 100)$  sq metre = 14.52 sq hectometres

Cost of watering 1 sq hectometre = Rs.26.5

Cost of watering the field =  $26.5 \times 14.52 = \text{Rs.}384.78$

**113. In a mixture of milk and water the proportion of milk by weight was 70%. If in a 250-gm mixture 100 gm water was added, what would be the percentage of water?**

**Answer:**

Proportion of milk in the mixture =  $250 \times (70/100) = 175$  gm

Water = 75 gm

After 100 gm water added in mixture the percentage of water =  $(75 + 100) / (250 + 100) \times 100 = (175/350) \times 100 = 50\%$

**114. Two pipes can fill a tank in 28 and 24 minutes respectively and a waste pipe can empty 5 gallons per minute. All three pipes working together can fill the tank in 16 minutes. How much time is taken by the waste pipe to empty the full tank?**

**Answer:**

Let the capacity of the tank be 336 litres

LMC of (28, 24 and 16 = 336)

Waste pipe empties the tank in  $(12 + 14 - 21)$  5 litres per minute

Waste pipe empties the tank in  $(336/5) = 67.2$  minutes

**115. A box contains 6 black and 14 white balls, out of which 3 black and 5 white balls are defective. If we choose two balls at random, what is the probability that either both are white or both are non-defective?**

**Answer:**

Required probability-  ${}^{14}C_2 / {}^{20}C_2 + {}^{12}C_2 / {}^{20}C_2 - {}^9C_2 / {}^{20}C_2 = 121/190$

**116. In a class, the average age of some boys is 16 years, and average age of 16 teachers is 56 years. If the average age of the combined group of all the teachers and boys is 20, then the number of students is**

**Answer:**

Use allegation method

number of boys 'x' : number of teacher '16'

.	16	56
.	20	
.	$(56-20)=36$	$(20-16)=4$
.	So $36/4 = 9/1$	

Now,  $x/16 = 9/1$ ,  $x=144$

**117. A started a business with initial investment of rs.12000, after 3 month B invest rs.15000 in this business. After 8 month from starting A withdrew one-fourth of his investment and B further invest 1/15 part of his investment. If at the end of one year the difference between the shares of profit of both is 700, what is the B's profit share?**

**Answer:**

$(12000*8 + 9000*4) : (15000*5 + 16000*4)$

132 : 139

Difference in profit sharing ratio is =  $139x - 132x = 7x$

Given  $7x = 700$ , So  $x = 100$

B's profit share =  $139x = 13900$

**118. There are three taps A, B, and C. A takes thrice as much time as B and C together to fill the tank. B takes twice as much time as A and C to fill the tank. In how much time can the Tap C fill the tank individually, if they would require 10 hours to fill the tank, when opened simultaneously?**

**Answer:**

Let A, B, C fills a, b, c units per hour.

Total units =  $10 * (a+b+c)$

Now,  $3a = b+c$  and  $2b = a+c$

Solving both,

$b = 4c/5$  and  $a = 3c/5$

total units of work =  $10c * (4/5 + 3/5 + 1) = 24c$

done by C in  $24c/c = 24$  hours

**119. The probability that a number selected at random from the first 52 natural numbers is a composite number is \_\_\_\_\_**

**Answer:**

15 prime, 36 composite and '1' is neither prime nor composite

**120.** A and B together can do a piece of work in 15 days, while B and C together can do it in 24 days. After A worked alone for 5 days and B alone for 11 days, C finished it in 21 days. In how many days can C alone finish the entire work?

**Answer:**

$$a+b=1/15$$

$$b+c=1/24$$

$$5a+11b+21c=1$$

$$5a+5b+6b+6c+15c=1$$

$$5(a+b)+6(b+c)+15c=1$$

$$C=1/36$$

**121.** Karan decided to donate x% OF HIS SALARY TO charity but on the day of donation he changed his mind and instead donated Rs 3500 which was 58% of what he decided earlier. If Karan's salary is 38000 then find x.

**Answer:**

$$(x/100) * (58/100) * 38000 = 3500$$

**122.** X speaks the truth in 40 percent of the cases and Y in 60 percent of the cases. Each of them is asked a series of questions, for which the answer can be only yes or no. What is the probability that they will contradict each other in answering a particular question?

**Answer:**

$$P(X)=40/100=2/5$$

$$P(Y)=60/100=3/5$$

$$P(X \cap \bar{Y}) + P(X \cap Y) = P(X) * P(\bar{Y}) + P(Y) * P(\bar{X}) = 2/5 * 2/5 + 3/5 * 3/5 = 13/25$$

**123.** I bought 3 pen, 4 pencil and 7 eraser that costed me Rs 83, then I bought 2 pen, 1 pencil and 3 eraser and that costed me Rs 17. If I have to buy 2 pen, 2 pencil and 4 eraser how much do I need to pay?

**Answer:**

$$3\text{pen}+4\text{pencil}+7\text{eraser}=83$$

$$2\text{pen}+1\text{pencil}+3\text{eraser}=17$$

$$\text{On adding } 5\text{pen}+5\text{pencil}+10\text{eraser}=100$$

$$\text{Pen+pencil+2eraser}=20$$

**124.** The sum of age A and B is 53. After 5 years the ratio of their age will be 2:1. What is the difference between their age?

**Answer:**

$$A+b=53$$

$$A+5/b+5=2:1$$

$$\text{On solving } a=37, b=16$$

**125.** If a five digit number is formed with digits 1, 2, 3, 4 and 5. What is the probability that it will be divisible by 25, if repetition is not allowed?

**Answer:**

Last two digits must be 25

Therefore first three digits can be arranged in 3! Ways and total number = 5!

$$\text{Hence } 3! / 5! = 1/20$$

**126.** A boat travelling at a speed of 50 kmph started at 1 p.m. when there was no current from point A for point B which is X km apart. At 3:15 p.m. current started which fastened the entire journey by certain minutes. The speed of boat is 5 times to the speed of current and if the total time taken is 5 hours, find X?

**Answer:**

Speed of boat=50

Speed of current=10

Speed of boat in current=60

Time taken=5 hour

$$50*9/4+60*11/4=112.5+165=277.5$$

**127.** A, B and C started business with a total investment of 63000. A invested 6000 more than B and C invested 15000 less than B. If A's profit at the end of year is 30000. What is total profit made by B and C?

**Answer:**

$$A+B+C=63000$$

$$A-b=6000$$

$$B-C=15000$$

$$\text{On solving } A=30000, B=24000, C=9000$$

**128.** Neeru and Siva invested Rs. 1600 and Rs. 1200 respectively. After 3 months, Neeru withdrew Rs. 500 while Siva invested Rs. 500 more. After 3 more months Shivani joins the business with a capital of Rs. 2100. The share of Siva exceeds that of Shivani, out of a total profit of Rs. 2640 after one year by

**Answer:**Neeru:Siva:Shivani=  $(1600*3 + 1100*9):(1200*3 + 1700*9):(2100*6) = 147:189:126 = 7:9:6$ Difference of Siva and Shivani shares = Rs.  $[2640 * (9/22) - 2640 * (6/22)] = \text{Rs. } 360$ **129. Find the area of trapezium whose parallel sides are 12 cm and 17 cm long, and the distance between them is 13****Answer:**

$$\text{Area} = \frac{1}{2} * (12+17) * 13$$

**130. Three vessels containing sugar solutions the concentrations of sugar as 0.5, 0.25 and 0.75 respectively. Six litres from the first, four litres from the second and 12 litres from the third are mixed. What is the ratio of water and sugar in the resultant mixture?****Answer:**

According to the question,

$$6*0.5+4*0.75+12*0.25/6*0.5+4*0.25+12*0.75=9/13$$

**131. A and B together can complete a task in 9 days. B and C together can complete the same task in 16 days. A and C together can complete the same task in 6 days. If A worked alone for 2 days, then B worked alone for 14 days, and then C worked alone for 4 days, what percentage of the task remains to be completed?****Answer:**

Let the work be taken as 144 units [LCM (9, 16, 6) = 144]

$$(A+B)'s \text{ one day's work} = \frac{144}{9} = 16 \text{ units.}$$

$$(B+C)'s \text{ one day's work} = \frac{144}{16} = 9 \text{ units.}$$

$$(C+A)'s \text{ one day's work} = \frac{144}{6} = 24 \text{ units.}$$

$$2(A+B+C)'s \text{ one day's work} = 48$$

$$(A+B+C)'s \text{ one day's work} = \frac{48}{2} \text{ units.}$$

$$\text{Now, } A's \text{ one day's work} = \frac{48}{2} - 9 = \frac{31}{2} \text{ units.}$$

$$B's \text{ one day's work} = \frac{48}{2} - 24 = \frac{1}{2} \text{ units}$$

$$C's \text{ one day work} = \frac{48}{2} - 16 = \frac{17}{2}$$

Total work done by A, B, C each doing alone

$$= \left( 2 \times \frac{31}{2} + 14 \times \frac{1}{2} + 4 \times \frac{17}{2} \right)$$

$$= 31 + 7 + 34 = 72 \text{ units.}$$

Required work yet be completed

$$= \left( \frac{144 - 72}{144} \right) \times 100 = 50\%$$

**132. If 15:13 is the ratio of present age of Riya and Siva respectively and 17:11 is the ratio between Riya's age 4 years hence and Siva's age 4 years ago. Then what will be the ratio of Riya's age 4 years ago and Siva's age 4 years hence ?****Answer:**

Let the present age of Riya and Siva be 15X and 13X respectively.

Given, Riya's age 4 years hence and Siva's age 4 years ago in the ratio 17:11

That is,  $15X + 4 / 13X - 4 = 17/11$ 

$$11(15X + 4) = 17(13X - 4)$$

$$165X + 44 = 221X - 68$$

$$56X = 112$$

$$X = 2$$

Therefore Riya=30

Siva=26

$$\text{Ratio}=30-4/26+4=13/15$$

**133. A man rows 4 km upstream in 2 hours and 8 km downstream in 3 hours then how long(approx) will he take to cover 16 km in still water?****Answer:**

Distance covered in downstream = 8 km

Time taken in downstream = 3 hours.

Rate of downstream = distance / time = 8km / 3 hours = 8/3 km/hr.

Distance covered in upstream = 4 km

Time taken in upstream = 2 hours.

Rate of upstream = distance / time = 4 km / 2 hours = 2 km/hr.

Speed in still water = (upstream +downstream)/2 =  $(1/2)(8/3 + 2) = (1/2)(14/3) = 7/3 \text{ km/hr.}$ Time Taken to cover 16 km in still water = distance / speed =  $16 \times 3/7 = 48/7 = 7 \text{ hours (approximately.)}$

**134.** Harish bought a book for Rs.485 and sold it at 20% loss. By using that amount he bought another book and sold it at 15% profit. Then overall profit/loss amount is:

**Answer:**

$$485 \cdot .8 \cdot 1.15 = 485 \cdot .92 = 446.20$$

Therefore loss=485-446.20=38.8Rs

**135.** Two friends A and B simultaneously start running around a circular track . They run in the same direction. A travels at 8 m/s and B runs at b m/s. If they cross each other at exactly three points on the circular track and b is a natural number less than 20, how many values can b take?

**Answer:**

Let track length be equal to T.

Time taken to meet for the first time = T/relative speed=T/8-b or T/b-8

Time taken for a lap for A = T/8

Time taken for a lap for B = T/b

So, time taken to meet for the first time at the starting point = LCM (T/8,T/b)=T/HCF(8,b)

Number of meeting points on the track = Time taken to meet at starting point/Time taken for first meeting = Relative speed / HCF (8,b).

$$(8-b)/HCF(8,b) = 3 \text{ or } (b-8)/HCF(8,b) = 3$$

b = 2, 5, 11,14 satisfy this equation. So, there are four different values that b can take.

**136.** A student scored 23% of maximum marks and failed by 23 marks. But if he scores 43% of the marks in the same exam, he passes by 17 marks. What is the maximum marks of the exam?

**Answer:**

Let, maximum marks = x

$$(43-23)\% \text{ of } x = (23+17)$$

$$20\% \text{ of } x = 40$$

Solving we get, x= 200

**137.** If the price of sugar is increased by 20%, its expenditure gets decreased by 25%. What is the net effect on the total sale?

**Answer:**

Use successive method

$$20 + (-25) + (20)(-25)/100 = -10$$

**138.** A invested Rs.50000 for starting a venture and B joined his business with a capital of 65000 after 4 months. A get Rs.350 in every 2 months for his extra work. Find B's profit if A receives a total of Rs.62100 as his share.

**Answer:**

$$(50000 \cdot 12) : (65000 \cdot 8) = 15 : 13$$

$$\text{Now, } (62100 - 350 \cdot 6) = 60000$$

$$\text{B's profit} = 60000 \cdot 13/15 = 52000$$

**139.** Two trains having equal speed take 10 seconds and 15 seconds respectively to cross a 250 meter long bridge. If the length of second train is 150 meters more than the first train, then find the speed of the trains?

**Answer:**

Let, length of first train = x

$$(x + 250)/10 = (x + 150 + 250)/15$$

Solving, we get x=50

$$\text{Speed} = 300/10 \text{ or } 450/15 = 30 \text{m/s}$$

Convert this speed into km/h,  $30 \cdot 18/5 = 108 \text{km/h}$

**140.** A train 75 m long overtook a person who was walking at the rate of 6 km/hr, passed him in  $7 \frac{1}{2}$  seconds. Also it overtook a second person in  $6 \frac{3}{4}$  seconds. What was the speed of the second person?

**Answer:**

Let, speed of train in km/h=x

$$(x-6) * 5/18 = 75 * 2/15,$$

Solving, we get = 42 km/h

Now, assume speed of second person is y km/hr,

$$\text{So, } (42-y) * 5/18 = 75 * 4/27$$

Solving, we get y = 2km/h

**141.** Thirteen litres are drawn from a cask full of water and then it is filled with milk. Now thirteen litres of mixture are drawn and the cask is again filled with milk. The ratio of quantity of water now left in the cask to that of the milk in it is 16 : 9. How much does the cask hold?

**Answer:**

Let x litres is total capacity of cask

Using formula, amount of water left in cask =  $x [1 - 13/x]^2$

$$[1 - 13/x]^2/x = 16/(16+9)$$

Solving we get, x = 65 l

**142. A reduction of 40% in the price of wheat would enable a purchaser to obtain 36 kg more for Rs. 45. What is the reduced price per kg?**

**Answer:**

Assume, purchaser buy 100 kg in Rs.45

Now the new price is  $60/100 * 45 = 27$ ,

It means in Rs.  $(45-27) = 18$ , 36kg more wheat is purchased.

Rs 18= 1800p

Now,  $1800/36= 50$  p

**143. A dishonest rice seller sells rice at 15% profit of rice CP, and he also uses 800gm weight in place of 1kg. Find his total profit percent.**

**Answer:**

Initial profit on CP = 15%

Again profit ,  $(1000-800)/800 * 100 = 25\%$

Use successive method,

$15 + 25 + (15)(25)/100 = 43.75\% \text{ or } 43 \frac{3}{4}\%$

**144. Sides of the parallelogram are in the ratio of 4:3, and its area is 1500 sq. units. Altitude on the greater side is 15 units. Find out the Altitude on the smaller side is?**

**Answer:**

Let the side of parallelogram be =  $4x$  and  $3x$

Area of parallelogram = basic \* height

Given area= 1500 units, so,

$4x * 15 = 1500$

$X = 25$  units

Sides =  $4 * 25$  and  $3 * 25 = 100$  and  $75$  units,

Now, height =  $1500/75 = 20$  units

**145. A bag contains 6 red balls, 11 yellow balls and 5 pink balls. If two balls are drawn at random from the bag, one after another, what is the probability that the first ball is red and the second ball is yellow?**

**Answer:**

Total of balls =  $6 + 11 + 5 = 22$

$n(S) = {}^{22}C_2 = (21 \times 22) / 2 = 231$

Now,  $n(E) = {}^6C_1 \times {}^{11}C_1 = 6 \times 11 = 66$

$P(E) = n(E)/n(S) = 66/231 = 6/21 = 2/7$

**146. The sum of the radius and the height of a cylinder is 19m. The total surface area of the cylinder is 1672 m<sup>2</sup>, what is the volume of the cylinder? (in m<sup>3</sup>)**

**Answer:**

Let the radius of the cylinder be  $r$  and height be  $h$ .

Then,  $r + h = 19 \quad \dots \text{(i)}$

Again, total surface area of cylinder =  $(2\pi rh + 2\pi r^2)$

Now,  $2\pi r(h + r) = 1672$

or,  $2\pi r \times 19 = 1672$

or,  $38\pi r = 1672, \pi r = (1672/38) = 44\text{m}, r = (44 \times 7) / 22 = 14$

Height =  $19 - 14 = 5\text{m}$

Volume of cylinder =  $\pi r^2 h = (22/7) \times 14 \times 14 \times 5 = 14\text{m} = 22 \times 2 \times 14 \times 5 = 3080\text{m}^3$

**147. The ratio of the speed of the boat upstream to the speed of the boat downstream is 2 : 3. What is the speed of the boat in still water if it covers 42 km downstream in 2 hours 20 minutes? (in km/h)**

**Answer:**

Let the speed of the boat in still water be  $x$  and that of the current be  $y$ .

Then, downstream speed =  $x + y$  and upstream speed =  $x - y$

Now, downstream speed =  $42 / [2 \text{ hours } 20 \text{ minutes}] = (42 \times 3) / 7 = 18 \text{ km}$

$x+y=18$

Again,  $3 : 18, 2 : 12$

(As ratio of downstream to upstream is 2 : 3)

$x - y = 12$  Solving (i) and (ii), we get

$(x+y=18) + (x - y = 12) = 2x = 30$

$x = 15 \text{ kmph}$

Hence speed of the boat 15 kmph

**148.** 35 men complete a piece of work in 16 days and 20 women complete the same piece of work in 30 days. What is the ratio of the amount of work done by 40 men in 1 day to the amount of work done by 15 women in 1 day?

**Answer:**

35 men complete the work in 16 days.

1 man completes the work in  $16 \times 35$  days,

32 men complete the work in  $(16 \times 35)/40 = 14$  days.

Again, 20 women complete the same piece of work in 30 days.

1 woman completes the same piece of work in  $20 \times 30$  days.

15 women can complete the work in  $(20 \times 30)/15 = 40$  days.

Ratio =  $1/14 : 1/40 = 40 : 14 = 20 : 7$

**149.** A man sold an article for Rs. 6800 and incurred a loss. Had he sold the article for Rs. 7850, his gain would have been equal to half of the amount of loss that he incurred. At what price should he sell the article to have 20% profit?

**Answer:**

Let the cost price be x.

Then, loss =  $(x - 6800)$

Again, profit =  $(7850 - x)$

Now,  $(7850 - x) = (x - 6800)/2$  or,  $15700 - 2x = x - 6800$

or,  $3x = 15700 + 6800 = 22500$

$x = 22500/3 = 7500$

Selling price =  $(7500 \times 120)/100 = \text{Rs. } 9000$

**150.** A bought a certain quantity of bananas at a total cost of Rs. 1500. He sold  $1/3$  of these bananas at 25% loss. If he earns an overall profit of 10%, at what percentage profit did A sell the rest of the bananas?

**Answer:**

Total CP = 1500

Total SP =  $1500 + 10\% \text{ of } 1500 = 1500 + 150 = 1650$

CP of  $1/3$  of bananas =  $1500/3 = \text{Rs. } 500$

SP of  $1/3$  of bananas at 25% loss =  $500 - [(500 \times 25 / 100)] = 500 - 125 = 375$

SP of the rest of bananas =  $1650 - 375 = 1275$

Now, CP of the rest of bananas =  $1500 - 500 = 1000$

Profit on the rest of bananas =  $1275 - 1000 = 275$

% of profit on the rest of bananas =  $(275/1000) \times 100 = 27.5\%$

**151.** A tank has two inlets: P and Q. P alone takes 6 hours and Q alone takes 8 hours to fill the empty tank completely when there is no leakage. A leakage was caused which would empty the full tank completely in ' $X$ ' hours when no inlet is open. Now, when only inlet P was opened, it took 15 hours to fill the empty tank completely. How much time will Q alone take to fill the empty tank completely? (in hours)

**Answer:**

$$(1/P) - (1/X) = (1/15)$$

$$\text{Or, } (1/6) - (1/X) = (1/15) \quad (P = 6 \text{ hours})$$

$$\text{Or, } (1/X) = (1/6) - (1/15) = (10-4)/60 = 1/10$$

$$X = 10 \text{ hours}$$

Now,

$$(1/Q) - (1/10) = (1/8) - (1/10) = (5-4)/40 = 1/40$$

Hence, Q fills the tank in 40 hours.

**152.** At present, the ratio of the ages of A to B is 3 : 8; and that of A to C is 1 : 4. Three years ago, the sum of the ages of A, B and C was 83 years.

What is the present age (in years) of C?

**Answer:**

According to the question,  $A : B = 3 : 8$

$A : C = 1 : 4$

$B : A = 8 : 3$

$A : C = 1 : 4$

$8 : 3 : 12$

$$\text{Sum} = 8x + 3x + 12x = 23x$$

$$\text{Now, } 23x = 92$$

$$x = 4$$

$$\text{Hence the present age of C} = 12x = 12 \times 4 = 48 \text{ years}$$

**153.** The sum invested in Scheme B is thrice the sum invested in Scheme A. The investment in Scheme A is made for 4 years at 8% p.a. simple interest and in Scheme B for 2 years at 13% p.a. simple interest. The total interest earned from both the schemes is Rs.1320. How much amount was invested?

**Answer:**

Let the amount invested in scheme A be Rs.x and that in B be Rs. 3x.

$$\text{Then, } [(x \times 4 \times 8)/100] [(3x \times 2 \times 13)/100] = 1320$$

$$\text{Or, } (32x/100) + (78x/100) = 1320$$

$$110x/100 = 1320$$

$$x = (1320 \times 100) / 110 = \text{Rs. 1200}$$

**154.** Kim and Om are travelling from point A to B, Which are 400 km apart. Travelling at a certain speed Kim takes one hour more than Om to reach point B. If Kim doubles her speed she will take 1 hour 30 mins less than Om to reach point B. At what speed was Kim Driving from point A to B? (in kmph)

**Answer:**

Let the speed of Kim be x and that of Om be y.

$$\text{Then, } (400/x) - (400/y) = 1$$

$$\text{Let } 1/x = u \text{ and } 1/y = v$$

$$400u - 400v = 1 \quad \dots(\text{i})$$

$$\text{Again, } (400/y) - (400/2y) = 3/2$$

$$400v - 200u = (3/2)$$

$$\text{Or, } 800v - 400u = 3 \quad \dots(\text{ii})$$

Solving (i) and (ii), we get

$$(400u - 400v = 1) + (-400u + 800v) = 400v = 4$$

$$v = (4/400) = (1/100) \text{ km}$$

$$y = 100 \text{ km}$$

$$\text{now, } (400/x) - (400/100) = 1$$

$$\text{or, } (400/x) = 5 \Rightarrow x = 80 \text{ kmph}$$

**155.** The ratio of a two-digit natural number to a number formed by reversing its digits is 13 : 31. Which of the following is the sum of all the numbers of all such pairs?

**Answer:**

$$\text{Number}=10a+b$$

$$\text{Reverse}=a+10b$$

$$10a+b/a+10b=13/31$$

$$a/b=1/3$$

Therefore numbers=13,26,39

**156.** 1 unit of x% alcohol is mixed with 4 units of y% alcohol to give 50% alcohol. If x > y, how many integer values can x take?

**Answer:**

$$x > y$$

$$\Rightarrow x > 50 > y.$$

$$(x - 50) = 4(50 - y).$$

50 - y is an integer

$\Rightarrow x - 50$  has to be a multiple of 4

x can take values {54, 58, 62, ..., 98} – x can take total of 12 values.

**157.** 42 men can complete a piece of work in 15 days and 52 women can complete the same work in 21 days. What is the ratio of the amount of work done by 7 men to that done by 13 women, in 1 day?

**Answer:**

$$42 \text{ men one day work} = 1/15$$

$$7 \text{ men one day work} = 7/(15 \times 42) = 1/90$$

$$52 \text{ women one day work} = 1/21$$

$$13 \text{ women one day work} = 13/(21 \times 52) = 1/84$$

$$\text{Ratio} = 84/90 = 14/15$$

**158.** The present average age of a family of six members is 28 years. If the present age of the youngest member in the family is EIGHT years, then what was the average age of the family at the time of the birth of the youngest member?

**Answer:**

$$\text{Sum of present age of all } 6 = 6 \times 28 = 168$$

$$\text{sum of Present age of rest } 5 = 168 - 8 = 160$$

$$\text{Sum of present age of rest } 5, 8 \text{ years ago} = 160 - 40 = 120$$

$$\text{Hence average} = 120/6 = 20$$

**159.** Sohan and Mohan enters into a partnership with their capitals in the ratio 7 : 4. At the end of 7months, Mohan withdraws his capital. If they receive their shares profits in the ratio 7 : 8, find out how long Sohan's capital was invested in the business?

**Answer:**

$$7 \times 4 \times 7 = 7/8$$

$$X = 3.5$$

**160.** A milkman mixes 20 litres of water with 80 litres of milk. After selling one-fourth of this mixture, he adds water to replenish the quantity that he has sold. What is the current proportion of water to milk?

**Answer:**

1/4th of the mixture is sold

1/4th of milk and 1/4th of water is sold.

= 3/4th of milk =  $(3/4) \times 80 = 60$  litres of milk is remaining and rest part  $100 - 60 = 40$  litres is water (as water is added in place of milk)

$$\text{Reqd ratio} = 40 : 60 = 2 : 3$$

**161.** A shopkeeper buys an article at a discount of 20% on the listed price from a wholesaler. The shopkeeper marks up the price by 15% on the listed price. A buyer pays Rs.3795 to get it after paying sales tax at the rate of 10% on the price asked for. Find the profit percentage of the shopkeeper.

**Answer:**

Let the listed price = Rs. 100

$$\text{CP of shopkeeper} = 100 - 20 = \text{Rs. } 80$$

$$\text{Marked price by shop keeper} = 100 + 15 = \text{Rs. } 115$$

$$\text{Now, } 115 = 3795 \times (100/110) = 3450$$

$$80 = (3450/115) \times 80 = \text{Rs. } 2400$$

$$\text{CP of shopkeeper} = \text{Rs. } 2400$$

$$\text{Profit} = 3450 - 2400 = 1050$$

$$\text{Profit \%} = (1050 / 2400) \times 100 = 43.75\%$$

**162.** A sum amounts to Rs.10580 in 2 years and to Rs.12167 in 3 years compounded annually. Find the sum and the rate of interest per annum.

**Answer:**

$$12167 = 10580 [1 + (r/100)]^1$$

$$\text{Or, } (12167/10580) = 1 + (r/100)$$

$$\text{Or, } (1587/10580) = r/100$$

$$r = (1587 \times 100) / 10580 = 15\%$$

$$\text{sum} = (10580 \times 100 \times 100) / (115 \times 115) = \text{Rs. } 8000$$

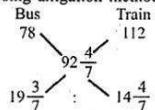
$$\text{Sum} = \text{Rs. } 8000, \text{ Rate} = 15\%$$

**163.** Mohit travels 972 km in 10.5 hours in two stages. In the first part of the journey, he travels by bus at the speed of 78 km, per hour. In the second part of the journey, he travels by train at the speed of 112 km/hr. How much distance does the travel by train?

**Answer:**

We use only alligation on speed (km/hr) to get ratio of time spent in bus and train. overall speed =  $(972/10.5) = (1944/21) = 648/7$

Using alligation method



$$136/7 : 102/7 \rightarrow 136 : 102$$

$$\text{Or } 4 : 3$$

$$\text{Time spent in train} = 10.5 (3/7) = 4.5 \text{ hours}$$

$$\text{Distance travelled by train} = 112 \times 4.5 \text{ hours} = 504 \text{ km}$$

**164.** A contractor undertook to do a certain work in 75 days and employed 48 men to do it. After 55 days he found that only  $(2/3)$  of the work was done. How many more men must be employed so that the work may finished in time?

**Answer:**

$$\text{Apply } M_1 D_2 / W_2 = M_2 D_2 / W_2$$

$$\text{Or, } (48 \times 55) / (2/3) = (M \times 20) / (1/3)$$

$$M = 66 \text{ men}$$

$$\text{Reqd more men} = 66 - 48 = 18 \text{ men}$$

**165.** 49 pumps can empty a reservoir in  $17/2$  days working 6 hours a day. If 119 pumps are used for 7 hours a day then in how many days will the same work be completed?

**Answer:**

Let the required number of days be x.

$$49 \times (17/2) \times 6 = 119 \times 7 \times x$$

$x = 3$  days

**166.** 6 kg of an alloy A is mixed with 8 kg of alloy B. If alloy A has lead and tin the ratio 1 : 3 and B has tin and copper in the ratio 2 : 3, then what is the amount of tin in the new alloy?

**Answer:**

$$\text{Quantity of tin in alloy A} = 6 \times \left(\frac{3}{4}\right) = 4.5 \text{ kg}$$

$$\text{Quantity of tin in alloy B} = 8 \times \left(\frac{2}{5}\right) = 3.2 \text{ kg}$$

$$\text{Quantity of tin in the new alloy} = 4.5 + 3.2 = 7.7 \text{ kg}$$

**167.** There are 5 boys and 4 girls. In how many ways can they be seated in a row so that all the girls do not sit together?

**Answer:**

$$\text{Total number of persons } 5 + 4 = 9$$

When there is no restriction they can be seated in a row in  $9!$  ways. But if all the 4 girls sit together, we can consider the group of 4 girls as one person. Therefore, we have only  $5 + 1 = 6$  persons

$$\text{Number of ways} = 6! \text{ ways}$$

$$\text{But 4 girls can be arranged among themselves in } {}^4P_4 = 4! \text{ ways}$$

$$\text{Reqd no.of ways in which all the 4 girls do not sit together} = 9! - 6! \times 4!$$

$$= 9 \times 8 \times 7 \times 6! - 6! \times 24 = 6! (504 - 24) = 720 \times 480 = 720 \times 480 = 345600$$

**168.** The difference between 20% of a number and  $\frac{4}{5}$ th of same number is 2499. What is  $\frac{2}{7}$ th of that number?

**Answer:**

Let the number be N.

$$\text{Then, } \frac{4}{5}N - 20/100N = 2499$$

$$\frac{4}{5}N - N/5 = 2499 \Rightarrow N(3/5) = 2499 \Rightarrow N = (2499 \times 5)/3 = 833 \times 5 = 4165$$

$$\text{Again, } 2/7 \text{ of } N = 2/7 \times 4165 = 2 \times 595 = 1190$$

**169.** Prithvi spent Rs. 89745 on his college fees, Rs. 51291 on personality development classes and the remaining 27% of the total amount he had as cash with him. What was the total amount?

**Answer:**

Here, money spent on college fees = Rs. 89745

Money spent on personality development classes = Rs. 51291

$$\text{Total amount} = 89745 + 51291 = \text{Rs. } 141036$$

$$\text{Now, remaining amount} = (100 - 27)\% = 73\%$$

$$\text{So, } 73\% = 141036$$

$$\Rightarrow 1\% = 141036/73$$

$$\Rightarrow 100\% = 141036/73 \times 100 = \text{Rs. } 193200$$

**170.** Vaishali spent Rs. 31897 on the air conditioner for the home, Rs. 38789 on buying plasma television and the remaining 23% of the total amount she had as cash with her. What was the total amount?

**Answer:**

Here, money spent on buying air conditioner = Rs. 31897

Money spent on buying plasma television = Rs. 38789

$$\therefore \text{Total money spent} = 31897 + 38789 = \text{Rs. } 70686$$

Now, she has left with 23% of total cash

$$\text{Hence, } 77\% = 70686 \Rightarrow 1\% = 70686/77$$

$$\Rightarrow 100\% = 70686/77 \times 100 = 918 \times 100 = \text{Rs. } 91800$$

**171.** Beena spend Rs. 44668 on her air tickets, Rs. 56732 on buying gifts for the family members and the remaining 22% of the total amount she had as cash with her. What was the total amount?

**Answer:**

Money spent on air tickets = Rs. 44668

Money spent on buying gifts = Rs. 56732

$$\text{Total amount} = \text{Rs. } 101400$$

This is equal to  $= (100 - 22)\% = 78\%$  of total money

$$\text{So, } 78\% = 101400 \Rightarrow 1\% = 101400/78$$

$$\therefore 100\% = 101400/78 \times 100 = \text{Rs. } 130000$$

**172.** A sum of Rs. 731 is divided among A, B and C, such that A receive 25% more than B and B receives 25% less than C. What is C's share in the amount?

Sol. Let C's share in the amount be Rs. x

$$\text{Then, B's share} = 10x \frac{75}{100} = \frac{3x}{4}$$

$$\text{A's share} = \frac{3x}{4} \times \frac{125}{100}$$

$$= \frac{15x}{16}$$

$$= \frac{15x}{16} + \frac{3x}{4} + x = 731$$

$$\Rightarrow \frac{175x}{160} + \frac{48x}{160} = 731$$

$$\Rightarrow \frac{223x}{160} = 731$$

$$\Rightarrow 1075x = 731 \times 400$$

$$\Rightarrow x = \frac{731 \times 400}{1075}$$

$$= \frac{292400}{1075} = 271.6 = \text{Rs. } 271$$

**173.** Mr Giridhar spends 50% of his monthly income on household items and out of the remaining, he spends 50% on transport, 25% on entertainment, 10% on sports and remaining amount of Rs. 900 is saved. What is Mr Giridhar's monthly income?

**Answer:**

Let Giridhar's monthly income be Rs. 100

Then, money spent on household's item =  $100 \times 50/100 = \text{Rs. } 50$

Remaining amount =  $100 - 50 = \text{Rs. } 50$

Money spent on transport =  $50 \times 50/100 = \text{Rs. } 25$

Money spent on entertainment =  $50 \times 25/100 = \text{Rs. } 12.5$

Money spent on sports =  $50 \times 10/100 = \text{Rs. } 5$

$\therefore$  Last remaining amount =  $100 - (50 + 25 + 12.5 + 5)$

$$100 - (92.5) = \text{Rs. } 7.5$$

$\therefore$  Rs. 7.5 is saved, when total income is Rs. 100

$\therefore$  Rs. 1 is saved, when total income =  $100/7.5$

Now, Rs. 900 is saved, when total income =  $100/7.5 \times 900 = 100 \times 120 = \text{Rs. } 12000$

**174.** Mr X spends 20% of his monthly income on household expenditure. Out of the remaining 25% he spends on children's education, 15% on transport, 15% on medicine and 10% on entertainment. He is left with Rs. 9800 after incurring all these expenditures. What is his monthly income?

**Answer:**

Let Mr X monthly income be Rs. 100

Then, money spent on household expenditure =  $100 \times 20/100 = \text{Rs. } 20$

$\therefore$  Remaining amount =  $100 - 20 = \text{Rs. } 80$

Money spent on children's education =  $80 \times 25/100 = \text{Rs. } 20$

Money spent on transport =  $80 \times 15/100 = \text{Rs. } 12$

Money spent on medicine =  $80 \times 15/100 = \text{Rs. } 12$

Money spent on entertainment =  $80 \times 10/100 = \text{Rs. } 8$

$\therefore$  Last remaining amount =  $100 - (20 + 20 + 12 + 12 + 8) = 100 - 72 = \text{Rs. } 28$

Now, Rs. 28 is left, when total income is Rs. 100

Rs. 1 is left, when total income =  $100/28$

$\therefore$  Rs. 9800 is left, when total income =  $100/28 \times 9800 = \text{Rs. } 35000$

**175.** In a class of 35 students and 6 teachers, each student got sweets that are 20% of the total number of students and each teacher got sweets that are 40% of the total number of students. How many sweets were there?

**Answer:**

Here, sweets that are got by each student =  $20/100 \times 35 = 7$

$\therefore$  Total number of sweets distributed students =  $35 \times 7 = 255$

Now, sweets that are got by each teacher =  $40/100 \times 35 = 14$

$\therefore$  Total number of sweets distributed to teachers =  $6 \times 14 = 84$

So, total number of sweets =  $255 + 84 = 339$

**176.** In a class of 80 students and 5 teachers, each student got sweets that are 15% of the total number of students and each teacher got sweets that are 25% of the total number of students. How many sweets were there?

**Answer:**

Here, number of sweets got by each student =  $80 \times 15/100 = 12$

So, total number of sweets got by all students =  $12 \times 80 = 960$

Number of sweets got by each teacher =  $80 \times 25/100 = 20$

So, total number of sweets got by all teachers =  $20 \times 5 = 100$

$\therefore$  Total number of sweets which are distributed to teachers and students =  $960 + 100 = 1060$

**177.** 405 sweets were distributed equally among children in such a way that the number of sweets received by each child is 20% of the total number of children. How many sweets did each child receive?

**Answer:**

Let total number of children be  $x$

Then, each child gets  $(x \times 20/100)$  sweets

Now,  $x/5 \times x = 405 \Rightarrow x^2 = 405 \times 5 \Rightarrow x^2 = 81 \times 25 \Rightarrow x = 9 \times 5 = 45$  sweets

Per child =  $405/45 = 9$

**178.** A candidate appearing for an examination has to secure 35% marks to pass. But he secured only 40 marks and failed by 30 marks. What would be the maximum marks to test?

**Answer:**

Here, passing marks of nay candidate =  $40 + 30 = 70$

Let the total marks be  $x$

Then,  $x = 35/100 = 70$

$x = 200$

**179.** In an election between two candidates, one got 52% of total valid votes. 25% of the total votes were invalid. The total number of votes were 8400. How many valid votes did the other person get?

**Answer:**

Answer: Here, total number of votes = 8400

Invalid votes =  $8400 \times 25/100 = 2100$

Valid votes =  $8400 - 2100 = 6300$

Votes got by one candidate =  $6300 \times 52/100 = 3276$

Number of votes got by other candidate =  $6300 - 3276 = 3024$

**180.** The ratio of students in school A, B and C is 5 : 4 : 7 respectively. If number of students in schools are increased by 20%, 25% and 20% respectively, then what will be the ratio of students in school A, B and C respectively?

Sol. Here, ratio of students in school,

A : B : C = 5 : 4 : 7

$$\text{New ratio} = 5 \times \frac{120}{100} : 4 \times \frac{125}{100} : 7 \times \frac{120}{100}$$

$$= 600 : 500 : 840$$

$$= 30 : 25 : 42$$

**181.** Population of a country increases every year by 10%. If the population in January 2006 was 15.8 lakh, what will be the population in January 2008?

Sol. Here,

Population of the country increases at the rate of 10% every year

Then, overall percentage increase.

$$= 10 + 10 + \frac{10 \times 10}{100} = 21\%$$

So, population in January 2008

$$= 15.8 \times \frac{121}{100}$$

$$= 15.8 \times 1.21$$

$$= 19.118 \text{ lakh}$$

**182.** The price of rice decreases by 6.25% and because of this reduction, Vandana is able to buy 1 kg more for Rs. 120. Find the reduced rate of rice.

Sol. Original price of the sugar =  $x$  rs/kg

$$\text{Reduced price} = \frac{100 - 6.25}{100} x = 0.9375 x$$

She can buy 1kg more with the reduced money

So,

$$\frac{120}{0.9375 x} - \frac{120}{x} = 1$$

$$x = \text{Rs. } 8 \text{ kg}$$

$$\text{reduced price} = 7.5$$

**183.** Jitendra's age is three times the sum of the ages of his two sons. Two years ago, his age was six years less than four times the sum of the ages of his sons. What is the present age of Jitendra?

**Answer:**

Let the sum of Jitendra's sons be  $x$  years

Then, Jitendra's age =  $3x$

Again,  $4(x - 2) - 6 = 3x - 2$

or,  $4x - 8 - 6 = 3x - 2$

or,  $x = 12$  years

Present age of Jitendra =  $3 \times 12 = 36$  years

**184. An amount of Rs. 6996 is divided among Raju, Babu and Shyam in such a way that if their shares be reduced by Rs. 8, Rs. 12 and Rs. 16 respectively, the remainders shall be in the ratio of 7 : 8 : 9. Find the share of Babu.**

**Answer:**

The amount which is divided among them =  $6996 - (8 + 12 + 16) = 6996 - 36 = 6960$

Now, Babu's share =  $6960 \times (8/24) + 12 = 2320 + 12 = \text{Rs. } 2332$

**185. The weights of two persons Rahul and Rupesh are in the ratio of 4 : 5. Rupesh's weight increased by 20% and the total weight of Rahul and Rupesh together became 135 kg with an increase of 25%. By what per cent did the weight of Rahul increase?**

**Answer:**

Rahul's + Rupesh's weight = 135 (100/125)

Rahul's weight =  $135(4/5)(4/9) = 48$  kg

Rupesh's weight =  $48(5/4) = 60$  kg

Now, after increase Rupesh's weight

=  $60 \times (120/100) = 72$  kg

After increase Rahul's weight =  $135 - 72 = 63$

Reqd % increase =  $[(63-48) / 48] \times 100 = (15/48) \times 100 = 31.25\%$

**186. A boat takes 3 hours to travel from place A to place B downstream and back from B to A upstream. If the speed of the boat in still water is 4 kmph what is the distance between the two places?**

**Answer:**

Let the distance from place A to B be x km and the speed of current be y km/hr.

Now,  $[x/(4+y)] + [x/(4-y)] = 3$

Or,  $(4x - xy + xy + 4x) / [(4 - y)(4 + y)] = 3$

Or,  $3(16 - y^2) = 8x$

Or,  $48 - y^2 = 8x$

So, we can't find the distances

**187. A train travelling at 57 km/hr passes another train half of its length travelling in the opposite direction at 33 km/hr in 18 seconds. If it passes a railway platform in 1.2 minutes, what is the length of the platform?**

**Answer:**

Distance travelled with relative speed  $57 + 33 = 90$  km/hr in 18 seconds =  $90(5/18) \times 18 = 450$ m

Ratio of lengths = First : Second train = 2 : 1

Length of first train = 300m

Now, distance travelled by 1st train at 57 km/hr in 72 seconds =  $57(5/18) \times 72 = 1140$ m

Length of platform =  $1140 - 300 = 840$ m

**188. In a school there are 30 more boys than girls. If the number of boys is increased by 10% and the number of girls is also increased by 45%, there would be nine more girls than boys. What is the number of students in the school?**

**Answer:**

Let there be 'a' boys and 'b' girls

$a-b=30$

$1.45b-1.1a=9$

on solving  $a=150, b=120$

**189. The simple interest accrued on Rs 36500 at the end of five years is Rs. 21900.What would be compound interest accrued on the same amount for same time period(Approx)**

**Answer:**

$36500 \times R \times 5 / 100 = 21900$

$R=12\%$

Now

$CI=36500 * ((1+12/100)^5 - 1) = 36500 * (1.76-1) = \text{Rs. } 27740$

**190. Two pipes A and B can fill a cistern in 40 minute and 50 minutes respectively. If both the pipes are opened together, then after how much time should B be closed so that the cistern is full in 30 minutes?**

**Answer:**

Let pipe B be close after x minutes

$X(1/40 + 1/50) + 30 - X(1/40) = 1$

$9X/200 - 5X/200 = 1 - 30/40$

$4X/200 = 10/40$

$X=12.5$

**191. The approximate compound interest accrued on Rs 27000 at the end of three years is Rs. 7012.What would be simple interest accrued on the same amount for same time period(Approx)**

**Answer:**

$$CI = 27000 * ((1+R/100)3 - 1)$$

$$7012/27000 = ((1+R/100)^3 - 1)$$

$$(1+R/100)^3 = 1.26$$

$$R=8$$

$$S.I = 27000 * 8 * 3 / 100 = 6480$$

**192. The average weight of boys in a class of students is 58 kg, while that of girls is 50 kg. The average weight of the entire class is 53 kg. The number of girls is approximately what per cent of the number of boys in the class?**

**Answer:**

Let the number of boys in the class be  $x$  and that of girls be  $y$ .

$$\text{Then, } (x \times 58 + 50y) / (x + y) = 53$$

$$\text{or, } 58x + 50y = 53x + 53y$$

$$\text{or, } 5x = 3y$$

$$x/y = 3/5$$

$$\text{Reqd \%} = (5/3) \times 100 = (500/3) = 166 \frac{2}{3}\% = 167\%$$

**193. A bag contains 5 red balls, 6 blue balls, 2 green balls and 7 white balls. If 2 balls are picked up at random, what is the probability that both the balls are white in colour?**

**Answer:**

Total number of balls =  $5 + 6 + 2 + 7 = 20$ .

$$n(S) = {}^{20}C_2 = (19 \times 20)/2 = 190$$

Probability that both balls are white

$$n(E) = {}^7C_2 = (7 \times 6) / (1 \times 2) = 21$$

$$P(E) = n(E) / n(s) = 21/190$$

**194. A can complete a given task in 24 days, while B is twice as efficient as he. A started on the work initially, and was joined by B after a few days. If the whole work was completed in 10 days, after how many days, from the time A started working, did B join A?**

**Answer:**

A can complete the work in 24 days Efficiency of B is twice that of A.

B can complete the work in  $24 \times (1/2) = 12$  days

According to the question, the work is completed in 10 days.

LCM of 24 and 12 = 24 units.

Let the total work be 24 units.

A can do in one day  $(24/24) = 1$  unit

And B can do in one day  $= 24/12 = 2$  units

Now, A works for 10 days.

Total work done by A in 10 days  $= 10 \times 1 = 10$  units

Remaining work  $= 24 - 10 = 14$  units

Now, 14 units of work is done by B in  $(14/2) = 7$  days

Hence B joined the work after  $(10-7) = 3$  days

**195. The angles of a quadrilateral are in the ratio of 9 : 8 : 12 : 7. The second largest angle of the quadrilateral is the part of a triangle, the base and hypotenuse of which are 15 cm and 17 cm respectively. What is the height of the triangle?**

**Answer:**

Sum of angles of a quadrilateral  $= 360^\circ$

Let the angles be  $9x, 8x, 12x$  and  $7x$ .

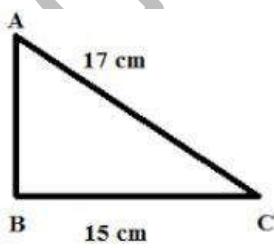
$$\text{Then, } 9x + 8x + 12x + 7x = 360^\circ$$

$$\text{or, } 36x = 360 \Rightarrow x = 100$$

$$\text{Thus, second largest angle} = 9 \times 10 = 90^\circ$$

Thus, the triangle is a right-angled triangle.

Now, ABC makes a right-angled triangle.



$$\text{Height of the triangle (AB)} = \sqrt{(AC)^2 - (BC)^2} = \sqrt{(17)^2 - (15)^2} = \sqrt{289 - 225} = \sqrt{64} = 8 \text{ cm}$$

**196.** When the price of rice was increased by 17% a family reduced its consumption in such a way that the expenditure on rice was 8% more than before. If 13 kg was consumed per month earlier, find the new monthly consumption.

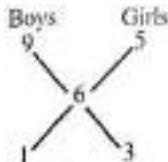
**Answer:**

$$\text{Reqd monthly consumption} = (108/117) \times 13 = 12 \text{ kg}$$

**197.** There are 52 students in a hostel. 312 toffees are distributed among them so that each boy gets 9 toffees and each girl gets 5 toffees. Find the number of boys and girls in that hostel.

**Answer:**

$$\text{Mean value of toffee per student} = 312/52 = 6 \text{ toffees}$$



$$\text{Boys : girls} = 1 : 3$$

$$\text{Number of boys} = [52 / (1+3)] \times 1 = 13$$

$$\text{And number of girls} = 52 - 13 = 39$$

**198.** The batting average of 40 innings of a cricket player is 70 runs. His highest score exceeds his lowest score by 170 runs. If these two innings are excluded, the average of the remaining 38 innings is 68 runs. What is his highest score?

**Answer:**

Let the highest score be  $x$ .

And the lowest score be  $y$ .

$$\text{Then, } x + y = 40 \times 70 - 38 \times 68 = 2800 - 2584 = 216$$

$$x+y=216$$

$$\text{Again, } x - y = 170 \text{ (ii)}$$

$$\text{Adding (i) and (ii), we get } (x+y=216) + (x - y=170) = 2x = 386$$

$$x=386/2 = 193$$

$$y = 216 - 193 = 23$$

Therefore the highest score = 193

**199.** A water tank is 20m long, 12m wide and 30m deep. It is made up of iron sheet which is 2m wide. The tank is open at top. If the cost of the iron sheet is Rs.18 per metre, then what is the total cost of the iron sheet required to build the tank?

**Answer:**

Surface area of the open tank

$$= 2(l \times w + w \times d + l \times d) - (l \times w)$$

$$= 2[20 \times 12 + 12 \times 30 + 20 \times 30] - 20 \times 12$$

$$= 2[240 + 360 + 600] - 240$$

$$= 2400 - 240 = 2160 \text{ m}^2$$

$$\text{Length of iron sheet} = 2160/2 = 1080 \text{ m}$$

$$\text{Total cost of iron sheet} = 1080 \times 18 = \text{Rs.19440}$$

**200.** Pipe A can fill a cistern in 24 minutes and B in 36 minutes. If both the pipes are open together, after how long should pipe B be closed so that the cistern becomes full in 18 minutes?

**Answer:**

Let the capacity of the tank = LCM of 24 and 36 = 72

Now, Pipe A can fill the tank  $(72/24 = ) 3$  units in a minute

Pipe B can fill the tank  $(72/36 = ) 2$  units in a minute

Now, A fills the tank in 18 minutes  $= (18 \times 3) = 54$  units

Remaining units  $= 72 - 54 = 18$  units

So, 18 units will be filled by B in  $(18/2 = ) 9$  minutes

**201.** A work which can be completed by 18 men in 26 days can also be done by 20 women in 33 days. 13 men start doing the work and complete one-third of the work. If they are now replaced by 22 women, in how many days the total work will be completed?

**Answer:**

18 m in 26 days, so 13 men do in  $18 \times 26 / 13 = 36$  days. They complete  $1/3$ rd of work. So number of days required by 13 men to complete that work is  $36 \times 1/3 = 12$  days.

Now:

20 w in 33 days, so 22 w do in  $20 \times 33 / 22 = 30$  days. They complete  $2/3$ rd of work. So number of days required by 22 women to complete that work is  $30 \times 2/3 = 20$  days.

So total  $12 + 20 = 32$  days

**202.** A profit of Rs 1200 is made by selling an article if one-third of it is sold at 9% profit and the remaining at 3% loss. What is the cost price of the article?

**Answer:**

It can be calculated as:

$$CP = 1200 * 100 / [1/3 * 9 + 2/3 * (-3)] = 1,20,000$$

\* 1/3rd sold at 9% profit, 2/3rd sold at 3% loss

**203.** There are 3 blue balls, 4 red, and 5 green balls. 3 balls are drawn at random. What is the probability of all blue or all green balls?

**Answer:**

$$\text{Probability of all blue} = {}^3C_3 / {}^{12}C_3 = 1/220$$

$$\text{Probability of all green} = {}^5C_3 / {}^{12}C_3 = 10/220$$

$$\text{So probability of all blue or all green} = 1/220 + 10/220 = 11/220$$

**204.** On a certain sum of money, compound interest obtained is Rs 3,520 after 2 years at 20% per annum. What will be the simple interest obtained at the same rate and for the same time.

**Answer:**

If P is the principal, SI for 2 years =  $P * 20 * 2 / 100 = 2P/5$

So, SI for 1 year =  $P/5$

$$CI \text{ for 2 years} = P/5 + (P/5 + 20/100 * P/5) = 2P/5 + P/25 = 11P/25$$

$$\text{Now, } 11P/25 = 3520, \text{ so } P = 8,000$$

$$\text{So SI} = 2 * 8000/5 = 3200$$

**205.** A person whose monthly salary is Rs 10,000 has expenditure of Rs 6,000. In the next month, his salary increases by 10% and so he increases his expenditure by 20%. What is the percentage change in his savings made?

**Answer:**

$$\text{Savings} = 10,000 - 6000 = 4000$$

$$\text{Income becomes} = (110/100) * 10,000 = 11,000$$

$$\text{Exp. becomes} = (120/100) * 6,000 = 7,200$$

$$\text{So savings now} = 11000 - 7200 = 3800$$

$$\text{So \% decrease in savings} = (4000 - 3800) / 4000 * 100 = 5\%$$

**206.** A circle whose area is 3850 sq. cm has circumference double the perimeter of a rectangle of breadth 30 cm. Find the area (in sq cm) of rectangle.

**Answer:**

$$\pi r^2 = 3850, \text{ so } r = 35$$

$$\text{Now perimeter of rect.} = (1/2) * 2\pi r = 110$$

$$\text{So } 2(l+30) = 110, \text{ so } l = 25$$

$$\text{So area} = 25 * 30$$

**207.** There are 2 mixtures of milk and water such that mixture A contains 25% water and mixture B contains 10% water. Equal quantities of both mixtures are taken and put in a bottle. Find the final ratio of milk to water

**Answer:**

Let x litres taken from both,

so milk : water = 75% of x : 90% of x : 25% of x : 10% of x

**208.** Ratio of ages of A and B is 2 : 3 and that of A and C is 4 : 9. If the difference in the ages of B and C is 15 years, find the age of C.

**Answer:**

$$B/A = 3/2 \text{ and } A/C = 4/9$$

$$\text{So } B : A : C = 3 * 4 : 2 * 4 : 2 * 9 = 6 : 4 : 9$$

$$A = 6x, B = 4x, C = 9x$$

$$\text{So } 9x - 6x = 15, \text{ this gives } x = 5$$

$$\text{So age of } C = 9x = 45$$

**209.** An article which was sold for Rs 540 was marked at Rs 750. If two successive discounts were given with first being 20%, find the second discount given?

**Answer:**

$$\text{Total discount \% given} = (750 - 540) / 750 * 100 = 72\%$$

So by successive formula

$$-20 - x + (20 * x) / 100 = -72$$

**210.** Thirty men can complete a work in 16 days. They started work and after 6 days, ten more men joined. Find the number of days in which the remaining work will get completed?

**Answer:**

$$30 \text{ m in 16 days, so } 40 \text{ men in } (30 * 16) / 40 = 12 \text{ days}$$

So

$$(1/16)*6 + (1/12)*x = 1$$

Solve,  $x = 7.5$  days

**211. Rajeev's age after 15 years will be 5 times his age 5 years back. What is the present age of Rajeev ?**

**Answer:**

Let Rajeev's present age be  $x$  years. Then, Rajeev's age after 15 years =  $(x + 15)$  years.

Rajeev's age 5 years back =  $(x - 5)$  years.

Therefore  $x + 15 = 5(x - 5)$

$$x + 15 = 5x - 25$$

$$4x = 40$$

$$x = 10.$$

Hence, Rajeev's present age = 10 years.

**212. The ages of two persons differ by 16 years. If 6 years ago, the elder one be 3 times as old as the younger one, find their present ages.**

**Answer:**

Let the age of the younger person be  $x$  years.

Then, age of the elder person =  $(x + 16)$  years.

$$\text{Therefore } 3(x - 6) = (x + 16 - 6)$$

$$3x - 18 = x + 10$$

$$2x = 28$$

$$x = 14.$$

Hence, their present ages are 14 years and 30 years.

**213. The product of the ages of Ankit and Nikita is 240. If twice the age of Nikita is more than Ankit's age by 4 years, what is Nikita's age?**

**Answer:**

Let Ankit's age be  $x$  years. Then, Nikita's age =  $240/x$  years.

$$2 * (240/x) - x = 4$$

$$480 - x^2 = 4x$$

$$x^2 + 4x - 480 = 0$$

$$(x+24)(x-20) = 0$$

$$x = 20.$$

Hence, Nikita's age =  $240/x = 240/20$  years = 12 years.

**214. The present age of a father is 3 years more than three times the age of his son. Three years hence, father's age will be 10 years more than twice the age of the son. Find the present age of the father.**

**Answer:**

Let the son's present age be  $x$  years. Then, father's present age =  $(3x + 3)$  years

$$(3x + 3 + 3) = 2(x + 3) + 10$$

$$3x + 6 = 2x + 16$$

$$x = 10.$$

Hence, father's present age =  $(3x + 3) = ((3 * 10) + 3)$  years = 33 years.

**215. Rohit was 4 times as old as his son 8 years ago. After 8 years, Rohit will be twice as old as his son. What are their present ages?**

**Answer:**

Let son's age 8 years ago be  $x$  years. Then, Rohit's age 8 years ago =  $4x$  years.

Son's age after 8 years =  $(x + 8) + 8 = (x + 16)$  years.

Rohit's age after 8 years =  $(4x + 8) + 8 = (4x + 16)$  years.

$$2(x + 16) = 4x + 16$$

$$2x + 32 = 4x + 16$$

Hence, son's present age =  $(x + 8) = 16$  years.

Rohit's present age =  $(4x + 8) = 40$  years.

**216. One year ago, the ratio of Gaurav's and Sachin's age was 6: 7 respectively. Four years hence, this ratio would become 7: 8. How old is Sachin ?**

**Answer:**

Let Gaurav's and Sachin's ages one year ago be  $6x$  and  $7x$  years respectively.

Then, Gaurav's age 4 years hence =  $(6x + 1) + 4 = (6x + 5)$  years.

Sachin's age 4 years hence =  $(7x + 1) + 4 = (7x + 5)$  years.

$$(6x+5) : (7x + 5) = 7 : 8$$

$$8(6x+5) = 7(7x + 5)$$

$$48x + 40 = 49x + 35$$

$$x = 5.$$

Hence, Sachin's present age =  $(7x + 1) = 36$  years.

**217.** Abhay's age after six years will be three-seventh of his father's age. Ten years ago the ratio of their ages was 1: 5. What is Abhay's father's age at present?

**Answer:**

Let the ages of Abhay and his father 10 years ago be  $x$  and  $5x$  years respectively.

Then, Abhay's age after 6 years =  $(x + 10) + 6 = (x + 16)$  years.

Father's age after 6 years =  $(5x + 10) + 6 = (5x + 16)$  years.

$$(x + 16):(5x + 16) = 3:7$$

$$7(x + 16) = 3(5x + 16)$$

$$7x + 112 = 15x + 48$$

$$8x = 64 \Rightarrow x = 8.$$

Hence, Abhay's father's present age =  $(5x + 10) = 50$  years.

**218. The Ratio of Ages of Mona and Sona is 4:5. Twelve Years hence, their ages will be in the ratio of 5:6. What will be Sona's age after 6 years ?**

**Answer:**

Let their present ages be  $4x$  &  $6x$

Then  $(4x + 12):(6x + 12) = 5:6$  or  $x=12$

Sona's age after 6 years =  $(6x + 6) = 66$  years

**219. Ramu was 4 times as old as his son 8 years ago. After 8 years, Ramu will be twice as old as his son. What are their present ages ?**

**Answer:**

Let son's age 8 years ago be  $x$  years

Then Ramu's age at that time =  $4x$  years

Son's age after 8 years =  $(x + 8) + 8 = (x + 16)$  years

Ramu's age after 8 years =  $(4x + 8) + 8 = (4x + 16)$  years

$$2(x + 16) = 4x + 16 \text{ or } x=8$$

Son's present age =  $(x + 8) = 16$  years

Ramu's present age =  $(4x + 8) = 40$  years

**220. A man is four times as old as his son. Five years ago, the man was nine times as old as his son was at that time. What is the present age of a man ?**

**Answer:**

Let son's age =  $x$ , then man's age =  $4x$ .

$$9(x - 5) = (4x - 5) \text{ or } x=8.$$

Man's present age =  $(4x + 7) = 35$  years

**221. 1.The average of 8 numbers is 20. The average of first two numbers is  $31/2$  and that of the next three is  $21\frac{1}{2}$ . If the sixth number is less than seventh and eighth number by 4 and 7 respectively, then eighth number is?**

**Answer:**

Let the eighth number be  $x$ . Then, sixth number =  $x-7$

Seventh number =  $(x-7)+4$

So,  $(2 \times 31/2) + (3 \times 21\frac{1}{2}) + (x-7) + (x-3) + x = 8 \times 20$

Or,  $x = 25$

**222. The price of a car is Rs.3,25,000. It was insured to 85% of its price. The car was damaged completely in an accident and the insurance company paid 90% of the insurance. What was the difference between the price of the car and the amount received?**

**Answer:**

Amount paid to the car owner = 90% of 85% of 325000 = Rs.248625

So, the required difference = Rs.  $(325000 - 248625) = \text{Rs. } 76375$

**223. Three containers have their volumes in the ratio 3:4:5. They are full of mixtures of milk and water in the ratio (4:1), (3:1) and (5:2) respectively. The contents of all these buckets are poured into a fourth container. The ratio of milk and water in the fourth container is?**

**Answer:**

Let the containers contain  $3x$ ,  $4x$  and  $5x$  litres of mixture respectively

Milk in first mix =  $(3x \times 4/5) = 12x/5$  litres

Water in first mix =  $(3x - 12x/5) = 3x/5$  litres

Milk in second mix =  $(4x \times 3/4) = 3x$  litres

Water in second mix =  $(4x - 3x) = x$  litres

Milk in third mix =  $(5x \times 5/7) = 25x/7$  litres

Water in third mix =  $(5x - 25x/7) = 10x/7$  litres

Total milk in final mix =  $314x/35$  litres

Total water in final mix =  $106x/35$  litres

Required ratio of milk and water =  $314x/35 : 106x/35 = 157:53$

**224.** Two pipes A and B can fill a tank in 48min and 16min respectively. If both the pipes are opened simultaneously, after how much time B should be closed so that the tank is full in 18 minutes?

**Answer:**

let B be closed after x min

Then, part filled by A+B in x min+part filled by A in (18-x)min=1

$$x(1/48+1/16)+(18-x)\times 1/48=1$$

$$\text{or, } x=10$$

**225.** The speed of a train in the onward journey is 25% more than that in the return journey. The train halts for 1hour on reaching the destination. The total time taken for the total to and fro journey is 17 hours, covering a distance of 800km. The speed of the train in the onward journey is ?

**Answer:**

let the speed in return journey be x kmph

$$\text{Then speed in onward journey} = 125x/100 = 5/4x \text{ kmph}$$

$$\text{Average speed} = 10x/9 \text{ kmph}$$

$$\text{Therefore, } 800\times 9/10x = 16$$

$$\text{So, } x=45 \text{ kmph}$$

$$\text{So, speed in onward journey} = (5/4 \times 45) = 56.25 \text{ kmph}$$

**226.** A train running at a 54kmph takes 20seconds to pass a platform. Next it takes 12seconds to pass a man walking at 6kmph in the same direction in which the train is going. Find the length of the train and the length of the platform?

**Answer:**

let the length of the train be x mt and the length of the platform be y mt.

Speed of the train relative to man=54-6=48kmph or 40/3 m/s

In passing a man, train covers its own length with relative speed

$$\text{So, length of the train} = \text{Relative speed} \times \text{time} = 40/3 \times 12 = 160 \text{ m}$$

$$\text{Also, speed of the train} = 54 \times 5/18 = 15 \text{ m/s}$$

$$\text{Therefore, } x+y/15 = 20$$

$$\text{Or, } y=140 \text{ m}$$

**227.** Speed of boat in the standing water is 9kmph and the speed of stream is 1.5kmph. A man rows to a place to a distance of 105km and comes back to the starting point. The total time taken by the man is?

**Answer:**

speed upstream=7.5kmph

Speed downstream=10.5kmph

$$\text{Therefore, total time taken} = (105/7.5 + 105/10.5) \text{ hrs.} = 24 \text{ hrs}$$

**228.** A jar full of whisky contains 40% alcohol. A part of this whisky is replaced by another containing 19%alcohol and now the percentage of alcohol was found to be 26%. The quantity of whisky replaced is?

**Answer:**

Since strength of the first jar=40%

Strength of second jar= 19%

Mean strength =26%

So, using the rule of allegation, the ratio between the two quantities is=7:14=1:2

Therefore, required quantity replaced is=2/3

**229.** 8litres are draw from a cask full of wine and replaced with water. This operation is performed three more times. The ratio of quantity of wine now left in the cask to that of water is 16:65. How much wine did the cask hold originally?

**Answer:**

let the qty of wine in the cask originally be = x litres

Then, quantity of cask left in the wine after 4 operations=[x (1-8/4)^4] litres

$$\text{Therefore, } x (1-8/4)^4/x = 16/81 \Rightarrow x=24$$

**230.** What annual installment (in approximate figure) will discharge a debt of Rs.2000 due in 3 years at 15% simple interest?

**Answer:**

let each installment be Rs. X

$$\text{So, } [x+x\times 15/100] + [x+x\times 15\times 2/100] + x = 2000$$

$$\text{Solving we get } x \approx \text{Rs.580}$$

**231.** In a 20 km Tunnel connecting 2 villages X and Y, there are three gutters. The distance between gutters 1 and 2 is half the distance between gutters 2 and 3. The distance from village X to its nearest gutter, gutter 1 is equal to the distance of Village Y from gutter 3. On a particular day, the hospital in village X receives information that an accident has happened at the third gutter. The victim can be saved only if an operation is started within 40 minutes. An ambulance started from village X at 30 kmph and crossed the first gutter after 5 minutes. If the driver had



**236.** A train travels for 7 hours at the speed of 27 km/hr. and for 9 hours at the speed of 38 km/hr. At the end of it driver finds he has covered  $\frac{3}{7}$ th of total distance. At what speed the train should travel to cover the remaining distance in 24 hours?

**Answer:**

Let the total distance is ' $x$ ' =  $3x/7 = (7 \times 27) + (9 \times 38) = 531$

$$x = (531 \times 7)/3 = 1239 \text{ km.}$$

Remaining distance =  $1239 - 531 = 708 \text{ km.}$

$$\text{Speed} = (708/24) = 29.5 \text{ km/hr}$$

**237.** How many different words can be formed with the letters of the word "TRANSFER" so that the words begin with 'T'?

**Answer:**

First letter 'T' is fixed, so remaining '7' letters can be filled in  $7!/2$  ways as the letter 'R' comes twice.

$$\text{Total arrangements} = 7!/2 = 2520$$

**238.** A bag contains 5 black and 3 white balls. A second bag contains 4 black and 2 white balls. One bag is selected at random. From the selected bag one ball is drawn. What is the probability that the drawn ball is black ?

**Answer:**

Probability of selecting first bag =  $1/2$  and probability of drawn ball is black is  $5c_1 / 8c_1 = 5/8$

$$P(E_1) = (1/2) \times (5/8), \text{ similarly } P(E_2) = (1/2) \times (4/6)$$

$$P(E) = (5/16) + (1/3) = (15+16)/48 = 31/48$$

**239.** Two pipes 'A' and 'B' would fill a tank in 36 hours and 45 hours respectively. If both pipes are opened together, find when the first pipe must be closed so that the tank may be just filled in 30 hours ?

**Answer:**

Let the first pipe is closed after 't' hours.

$$(t/36) + (30/45) = 1, (t/36) = 1 - (2/3) = 1/3$$

$$t = 36 \times (1/3) = 12 \text{ hours.}$$

**240.** A shopkeeper buys 5 tables and 8 chairs for Rs.5000. He sells the tables at a profit of 12% and chairs at a loss of 8%. If his total gain is Rs.80 then what price does he pay for a table and a chair ?

**Answer:**

Let the price of a table is ' $x$ ' and chair is ' $y$ '

$$5x + 8y = 5000 \quad (\text{I})$$

$$12\% \text{ of } 5x = 5x \times (12/100) = 3x/5$$

$$\text{and } 8\% \text{ of } 8y = (16y/25)$$

$$= (3x/5) - (16y/25) = 80$$

$$15x - 16y = 2000 \quad (\text{II})$$

Solving equn (I) and (II)  $x = 480$  and  $y = 325$

**241.** Population of a city is 1.2 lakh. If the population of male increases by 5% and the female by 10%, the population will be 1.2835 lakh. What is the number of female in the city ?

**Answer:**

Let the population of female is ' $x$ '.

$$\text{Population of male} = 1.2 - x = (110x/100) + [(105/100)(1.2 - x)] = 1.2835$$

$$110x + 126 - 105x = 128.35$$

$$5x = 128.35 - 126 = 2.35$$

$$x = (2.35/5) = 0.47 \text{ lakh} = 47000$$

**242.** A shopkeeper marks his goods 20% above the cost price but give 11% discount on it. If he sells the article for Rs.1575.30 then what is the cost price ?

**Answer:**

Let the cost price is ' $x$ '

$$x \times (120/100) \times (89/100) = 1575.3$$

$$x = (1575.3 \times 100) / (120 \times 89) = 1475$$

**243.** If Rs. 6200 amounts to Rs. 8804 in 3 years 6 months, what will Rs. 7800 amount to in 4 years 6 months at the same rate percent per annum ?

**Answer:**

$$\text{S.I.} = 8804 - 6200 = 2604$$

$$r = (2604 \times 100) / (6200 \times 3.5) = 12\% \text{ p.a}$$

$$\text{Now for Rs. 7800, S.I.} = (7800 \times 4.5 \times 12) / 100 = 4212$$

$$\text{Req. amount} = 7800 + 4212 = 12012$$

**244.** The compound interest on a certain sum of money for two years at 8% p.a. is Rs. 499.20. What will be the simple interest at the same rate and for the same time period ?

**Answer:**

$$P[1 + (8/100)]^2 - P = 499.20$$

$$P(27/25)^2 - P = 499.20$$

$$P(729-625)/625 = 499.20$$

$$P = (499.20 \times 625) / 104 = 3000$$

$$S.I. = (3000 \times 8 \times 2) / 100 = 480$$

**245.** Certain number of persons can do a work in 50 days. If there were 7 persons more the work could be finished in 14 days less. How many persons were there initially ?

**Answer:**

Let the original number of men 'x'

7 person (50 - 14 = 36) days work = x persons 14 days work

$$x = (7 \times 36) / 14 = 18$$

**246. Find the area of a circle whose radius is equal to the side of an equilateral triangle of area  $9\sqrt{3}$  cm<sup>2</sup> (find approximate area)-**

**Answer:**

$$\text{area of equilateral } \Delta = \sqrt{3}/4 \times x^2$$

where, ( x = side)

$$\sqrt{3}/4 \times x^2 = 9\sqrt{3}$$

$$x^2 = 36$$

$$x = 6$$

à x = 6 cm.

à area of circle =  $\pi r^2$ , (where, r = x)

$$\pi \times 6^2 = 113.04$$

**247. In an election between two candidates, one got 55% of the total valid votes, 20% of votes were invalid. If the number of votes was 7500, what was the number of valid votes, 2nd candidate got?**

**Answer:**

$$\text{Valid votes} = 80\% \text{ of } 7500 = 6000$$

$$\text{2nd candidates got} = 45\% \text{ of } 6000 = 2700$$

**248. A bag contains 2 yellow, 3 green and 2 blue balls. Two balls are drawn at random, what is the probability that none of the balls drawn is blue?**

**Answer:**

$$\text{Total Balls} = 2+3+2 = 7$$

2 balls drawn should not be blue à except blue, total is 5, so  ${}^5C_2$  out of total  ${}^7C_2$

$$\text{so required probability} = ({}^5C_2) / ({}^7C_2) = 10/21$$

**249. The ratio of height and diameter of a cylinder is 2 : 3. Find the ratio of its volume and curved surface area of radius 6 cm?**

**Answer:**

$$h:d = 2:3 \Rightarrow h:2r = 2:3$$

$$\Rightarrow h/12 = 2/3 = 8$$

$$\Rightarrow \text{Volume/C.S.A} = (\pi r^2 h) / (2\pi r h)$$

$$\Rightarrow 6/2 = 3/1 \text{ or } 3:1$$

**250. How many bricks are needed to complete a wall 15 m × 12 m × 10 cm. using bricks 24 cm × 25 cm × 10 cm. thick if 1/3 rd of the wall is already built?**

**Answer:**

$$(1500 \times 1200 \times 10) / (24 \times 25 \times 10) = 3000$$

Since 1/3 rd is built, so required bricks =  $(2/3) \times 3000 = 2000$

# 100+ MIXED QUANTITATIVE APTITUDE QUESTIONS

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1. A boat takes 90 minutes less to travel 36 km downstream than to travel the same distance upstream. If the speed of the boat in still water is 10 km/h, the speed of the stream is:  
A) 3km/hr  
B) 1.5km/hr  
C) 2km/hr  
D) 4km/hr  
E) None

[View Answer](#)

**Option C**

**Solution:**

Let the speed of the stream  $x$  km/hr.

Then downstream  $=(10+x)$

Upstream  $=(10-x)$

$$36/(10-x) - 36/(10+x) = 90/60$$

$$72x * 60 = 90(100 - x^2)$$

$$x^2 + 48x - 100 = 0$$

$$x = 2 \text{ km/hr.}$$

2. In an exam out of 1800 students, 65% boys and 80% girls are passed. If total pass percentage was 75%, how many girls appeared in the exam and how many girls failed?  
A) 1350, 360  
B) 1200, 240  
C) 1000, 180  
D) 1050, 280  
E) None

[View Answer](#)

**Option B**

**Solution:**

B65 ..... G80

. 75

5 ..... 10

Ratio 1:2.

Number of Girls  $1800 * 2/3 = 1200$ .

Then No of girls failed  $= 1200 * 20/100 = 240$ .

3. The average temperature for Wednesday, Thursday and Friday was 42 Deg c. The average for Thursday, Friday and Saturday was 43 Deg c. If temperature on Saturday was 44 Deg c, what was the temperature on Wednesday?  
A) 47 Deg c  
B) 43 Deg c  
C) 45 Deg c  
D) 41 Deg c

E) None

[View Answer](#)

**Option D**

**Solution:**

Average temperature for Wednesday, Thursday and Friday = 42 Deg c

Total temperature =  $3 \times 42 = 126$  Deg c

Average temperature for Thursday, Friday and Saturday = 43 Deg c

Total temperature =  $43 \times 3 = 129$  Deg c

Temperature on Saturday = 44 Deg c

Now ,

(Thursday + Friday + Saturday) – (Wednesday + Thursday + Friday) = 129-126

Saturday – Wednesday = 3

Wednesday =  $44 - 3 = 41$  Deg c.

4. Find the average of first 85 natural numbers.

- A) 43
- B) 50
- C) 48
- D) 53
- E) None

[View Answer](#)

**Option A**

**Solution:**

Average of 1st n natural number is given by =  $([n*(n+1)]/2)/n$

Average of 1st 85 natural number is given by

$\{([85*(86)]/2)/85\} = 43$ .

5. On a road three consecutive traffic lights change after 40, 48 and 56 seconds respectively. If the lights are first switched on at 10:00 AM sharp, at what time will they change simultaneously?

- A) 10.35m
- B) 10.28am
- C) 10.40am
- D) 10.43am
- E) None

[View Answer](#)

**Option B**

**Solution:**

LCM of 40,48,56=1680sec

Hence, the lights will change simultaneously after 28 minutes.

6. Find the least number of five digits which when divided by 40, 60, and 75, leave remainders 31, 51 and 66 respectively.

A) 10136  
B) 10102  
C) 10191  
D) 10111  
E) None

[View Answer](#)

**Option C**

**Solution:**

$$\text{Difference, } 40-31 = 9$$

$$60-51 = 9$$

$$75-66 = 9$$

Difference between numbers and remainder is same in each case.

Then ,

$$\text{The answer} = \{(LCM \text{ of } 40, 60, 75)-9\}$$

$$LCM = 600$$

$$\text{But, the least number of 5 digits} = 10000$$

$$10000/600, \text{ we get remainder as } 400.$$

$$\text{Then, the answer} = 1000-(600-400)-9; = 10191.$$

7. X takes 4 days to complete one-third of a job. Y takes 3 days to complete one-sixth of the job and Z takes 5 days to complete half the job. If all of them work together for 3 days and X and Z quit, how long will it take for Y to complete the remaining work done.

A) 6  
B)  $5 \frac{1}{10}$   
C)  $4 \frac{2}{3}$   
D) 7  
E) None

[View Answer](#)

**Option B**

**Solution:**

$$X \text{ one day work } 1/12$$

$$Y \text{ one day work } 1/18$$

$$Z \text{ one day work } 1/10$$

Let Y take n days to complete remaining work then

$$3/12 + 3/18 + 3/10 + n/18 = 1$$

$$n/18 = 1 - 1/4 - 1/6 - 3/10$$

$$n/18 = 17/60$$

$$n = (17*18)/60 = 5 \frac{1}{10} \text{ days.}$$

8. An Employer pays Rs. 15 for each day a worker works, and forfeits Rs. 5 for each day he is idle. At the end of 40 days, a worker gets Rs. 160. For how many days did the worker remain idle?

- A) 26
- B) 28
- C) 18
- D) 22
- E) None

[View Answer](#)**Option D****Solution:**

Suppose the worker remained idle for  $x$  days. Then,

He worked for  $(40 - x)$  days.

$$=15(40-x)-5x=160|$$

$$600-15x-5x=160$$

$$20x=600-160$$

$$20x=440$$

$$x = 22.$$

9. The ratio between the length and the breadth of a rectangular park is  $4 : 1$ . If a man cycling along the boundary of the park at the speed of  $15 \text{ km/hr}$  completes one round in  $10 \text{ minutes}$ , then the length of the park (in sq. m) is:

- A) 850
- B) 1000
- C) 600
- D) 560
- E) None

[View Answer](#)**Option B****Solution:**

Perimeter = Distance covered in  $10 \text{ min}$ .

$$=(15000/60)*10 = 2500\text{m}$$

Let  $l = 4x$  and  $b = x$

$$\text{Then, } 2(4x + x) = 2500$$

$$x = 250.$$

$$\text{then } l = 4 * 250 = 1000.$$

10. An error  $3\%$  in excess is made while measuring the side of a square. The percentage of error in the calculated area of the square is:

- A) 5.45%
- B) 5.10%
- C) 6.09%
- D) 4.5%
- E) None

[View Answer](#)

**Option C****Solution:**

Let 100 cm is read as 103 cm.

$$\text{Area } 100 \times 100 = 10000$$

$$\text{Error area } 103 \times 103 = 10609$$

Diff=609.

$$\% \text{ge error} = (609/10000) \times 100 = 6.09\%$$

1. A profit of 30% is made on goods when a discount of 20% is given on the marked price. What profit per cent will be made when a discount of 30% is given on the marked price?
- A) 11
  - B) 13.75
  - C) 12.5
  - D) 6.5
  - E) None

[View Answer](#)

**Option B****Solution:**

discount 80 130 (profit)

$$\text{MP } 100 ? \implies (130 \times 5)/4$$

$$\text{Then } 100 (130 \times 5)/4$$

$$\text{Discount } 70 ? \implies (13 \times 5 \times 7)/4$$

$$= 113.75.$$

2. A shopkeeper marks up the price of his product by 20%. If he increases the discount from 5% to 10%, the profit would decrease by Rs 21. How much profit/ loss would he earn if he gives a discount of 20% on the marked price?
- A) Rs14 loss
  - B) Rs14 profit
  - C) Rs20 loss
  - D) Rs20 profit
  - E) None

[View Answer](#)

**Option A****Solution:**

Let CP be 100 then MP 120

5% discount = 114.

10% discount = 108.

Diff 6 21

(CP)100 ?  $\implies 350$ .

Then MP=20% of 350=70=350+70=420.

Now 20% discount 20% of 420 =336.

Loss =350-336=Rs14.

3. A number, x equals 80% of the average of 5, 7, 14 and a number y. If the average of x and y is 26, then value of y is
- A) 28
  - B) 36
  - C) 25
  - D) 39
  - E) None

[View Answer](#)

#### Option D

##### Solution:

Average of 5,7,14 and y= $(5+7+14+y)/4$

Then x= 80% of  $(5+7+14+y)/4$

$$x=(26+y)/5 - 1$$

$$(x+y)/2=26 - 2$$

Solving 1 and 2 y=39.

4. The average age of a family of 6 members is 20 years. If the age of the youngest member be 5 years, the average age of the family at the birth of the youngest member was?
- A) 19 yrs
  - B) 22 yrs
  - C) 16 yrs
  - D) 21 yrs
  - E) None

[View Answer](#)

#### Option A

##### Solution:

Total present age of the family  $(6*20) = 120$  yrs

Total age of the family 6 years ago  $= (120 - 6*5) = 90$  years

At that time, Total members in the family = 5

Therefore Average age at that time  $= 90/5 = 19$  yrs..

5. The distance between two cities A and B is 330km. A train starts from A at 7am. and travels towards B at 60 km/hr. Another train starts from B at 8am. and travels towards A at 75 km/hr. At what time do they meet?
- A) 11am
  - B) 11.30am
  - C) 10.30am
  - D) 10am
  - E) None

[View Answer](#)**Option D****Solution:**

Distance travelled by first train in one hour

$$= 60 \times 1 = 60 \text{ km}$$

Therefore, distance between two train at 9 a.m.

$$= 330 - 60 = 270 \text{ km}$$

Now, Relative speed of two trains =  $60 + 75 = 135 \text{ km/hr}$

Time of meeting of two trains =  $270/135 = 2 \text{ hrs.}$

Therefore, both the trains will meet at  $9 + 2 = 10 \text{ A.M.}$

6. Speed of a man in still water is 6 km/hr and the river is running at 4km/hr. The total time taken to go to a place and come back is 18 hours. What is the distance traveled?

- A) 45km
- B) 40km
- C) 60km
- D) 50km
- E) None

[View Answer](#)**Option C****Solution:**

Down speed =  $6+4= 10$

Up speed =  $6-4=2$

Let distance travelled = X

$$(X/10)+(X/2)= 18$$

$$X= 30 \text{ km}$$

Total distance is  $30+30=60$ .

7. A tricolor flag is to be formed having three adjacent strips of three different colors chosen from six different colors. How many different colored flags can be formed with different design in which all the three strips are always in horizontal positions?

- A) 110
- B) 90
- C) 120
- D) 85
- E) None

[View Answer](#)**Option C****Solution:**

First strips can be coloured in 6ways and second strip can be coloured in 5ways and third strip can be coloured in 4ways.

Hence all the strips can be coloured in  $6*5*4=120$ ways.

8. There are 7 men and 8 women. In how many ways a committee of 4 members can be made such that a particular woman is always included.

- A) 380
- B) 410
- C) 290
- D) 364
- E) None

**View Answer**

**Option D**

**Solution:**

There are total 15 people, a particular woman is to be included, so now 14 people are left to chosen from and 3 members to be chosen.

$$\text{So ways are } 14C3 = \frac{(14 \times 13 \times 12)}{(3 \times 2 \times 1)} = 364.$$

9. Fresh fruit contains 68% water and dry fruit contains 20% water. How much dry fruit can be obtained from 100 kg of fresh fruits ?

- A) 40
- B) 35
- C) 46
- D) 56
- E) None

**View Answer**

**Option A**

**Solution:**

Quantity of pulp in fresh fruit =  $100 - 68 = 32$ .

The quantity of dry fruit obtained be  $x$  kg

Then 80% of  $x = 32$ .

$$X = 40.$$

10. In covering a certain distance, the speeds of A and B are in the ratio of 3 : 4. A takes 30 minutes more than B to reach the destination. The time taken by A to reach the destination is :

- A) 4hrs
- B) 3hrs
- C) 2hrs
- D) 2.5hrs
- E) None

**View Answer**

**Option C**

**Solution:**

Ratio of speeds = 3:4. Ratio of times taken = 4:3.

Suppose A takes  $4x$  hrs and B takes  $3x$  hrs to reach the destination

$$4x - 3x = 30/60 \Rightarrow x = 1/2.$$

Then time taken by A =  $4 * 1/2 = 2$  hrs.

- A Man started his journey, he travelled 400 km, at the speed of 40 km/hr then he went to another 300 km, at the speed of 20 km/hr. Further he went 600 km, at the speed of 30 km/hr. The average speed of a Man is:

- A)  $28\frac{8}{9}$  km/hr  
 B)  $29\frac{5}{6}$  km/hr  
 C) 30.5 km/hr  
 D) 32 km/hr  
 E) None

[View Answer](#)

**Option A**

**Solution:**

$$\begin{aligned} \text{Average Speed} &= \text{Total distance} / \text{Total time} \\ &= (400+300+600)/[(400/40)+(300/20)+(600/30)] \\ &= 1300/(10+15+20) \\ &= 1300/45 \\ &= 28\frac{8}{9} \end{aligned}$$

- A Bike travels the first  $\frac{1}{4}$  of a certain distance with speed of 10 km/hr, the second  $\frac{1}{4}$  distance with a speed of 20 km/hr, the third  $\frac{1}{4}$  distance with a speed of 30 km/hr and the last  $\frac{1}{4}$  distance with a speed of 40 km/hr the average speed of the bike for whole journey is

- A) 20 km/hr  
 B) 18 km/hr  
 C) 24 km/hr  
 D) 22 km/hr  
 E) None

[View Answer](#)

**Option**

**Soluti**

Assume that the total distance be 80 km. then for each part 20 km.

$$\begin{aligned} \text{Average speed} &= \text{Total distance} / \text{Total time} \\ &= 80/[(20/10)+(20/20)+(20/30)+(20/40)] = 80/(2+1+2/3+1/2) \\ &= 80/([12+6+4+3]/6) \Rightarrow 80 * 6/25 = 19.2 \text{ km/hr.} \end{aligned}$$

- Four cards are drawn at random from a well-shuffled deck of cards. What is the probability of getting all the four cards of same terms?

- A)  $13/20825$   
 B)  $1/20825$   
 C)  $17/1665$

- D) 5/25850  
E) None

[View Answer](#)

**Option B**

**Solution:**

All four are same no we can take in 13 ways

Then required probability  $13/52C4$

$$13/(52*51*50*49/1*2*3*4)=13/270725=1/20825$$

- A Salesman charges sales tax of  $x\%$  upto Rs.2,000 and above it he charges  $y\%$ . A customer pays total tax of Rs 320, when he purchases the goods worth Rs. 6,000 and he pay's the total tax of Rs. 680 for the goods worth Rs. 12,000. The value of  $x$  and  $y$  is:

- A) 4,6  
B) 2,3  
C) 1,4  
D) 2,4  
E) None

[View Answer](#)

**Option A**

**Solution:**

$$2000*x/100+4000*y/100=320 \Rightarrow x+2y=16-1$$

$$2000*x/100+10000*y/100=680 \Rightarrow x+5y=34-2$$

Solving 1 and 2 we get  $x=4$   $y=6$

- Two pipes A and B when working alone can fill a tank in 36 min. and 45 min. respectively. A waste pipe C can empty the tank in 30 min. First A and B are opened. After 7 min., C is also opened. In how much time (in mins) will the tank be full ?

- A) 39  
B) 45  
C) 40  
D) 53  
E) None

[View Answer](#)

**Option A**

**Solution:**

$$36.....5$$

$$45.....LCM 180.....4$$

$$30 ..... -6$$

First A and B work for 7mins

$$1mins \Rightarrow 5+4=9\text{unit}$$

$$7mins 9*7=63.$$

$$180-63=117$$

Now all 3 pipes open

$$1\text{min}(5+4-6)=3$$

$$117/3=39\text{mins}$$

- 3 small pumps and a large pump are filling a tank. Each of the three small pumps works at  $\frac{2}{3}$  rd the rate of the large pump. If all 4 pumps work at the same time, they should fill the tank in what fraction of the time that it would have taken the large pump alone?

- A)  $\frac{1}{7}$
- B)  $\frac{2}{3}$
- C)  $\frac{1}{3}$
- D)  $\frac{1}{5}$
- E) None

[View Answer](#)

**Option C**

**Solution:**

Let larger pipe can fill tank in 2hrs

Then smaller pipe can fill in 3hrs.

And 3 smaller pipe can fill in 1 hrs.

Time taken by all 4 pipes to fill the tank  $= \frac{1}{(1+\frac{1}{2})} = \frac{1}{(\frac{3}{2})} = \frac{2}{3}$

Required answer  $\frac{2}{3} * \frac{1}{2} = \frac{1}{3}$

- Sharma takes 5 hours to type 5 pages while Swetha takes 4 hours to type 80 pages. How much time will they take working together on different computer to type an assignment of 150 pages.

- A) 7
- B) 9
- C) 8
- D) 5
- E) None

[View Answer](#)

**Option D**

**Solution:**

In one hour Sharma types  $\frac{5}{5} = 1$  page and similarly for Swetha it is  $\frac{80}{4} = 20$ .

Now to type 150 pages they will take,  $(10 + 20)*T = 150$ ,  $T = 5$  hours

- If 12 mechanic working 4hours a day can repair 360 cars in 80 days, then no. Of cars repaired by 16 mechanic in 24 days each working 8hours in a day

- A) 320
- B) 288
- C) 250
- D) 344
- E) None

[View Answer](#)

**Option B****Solution:**

$$12*4*80/360 = 16*24*8/x$$

$$X=8*36=288$$

- Two trains P and Q are separated by 220 km on a straight line. One train starts at 8 am from one station A towards B at 40 km/hr and another train starts from B towards A at 9 am at 60 km/hr. At what time will both train will meet?

- A) 11.15am  
 B) 11am  
 C) 10.30am  
 D) 10.48am  
 E) None

[View Answer](#)

**Option D****Solution:**

In one hour first train will cover 40 km, so distance between them remains only 180.

Now

$$\frac{x}{40} = \frac{(180 - x)}{60}, \text{ we get } x = 72,$$

so time =  $72/40 = 1 \text{ hour } 48 \text{ minutes}$   
 so both will meet at 10:48 am

- A and B are two partners and they have invested Rs. 54,000 and Rs. 90,000 in business. After one year A received Rs 1200 as his share of profit out of total profit of Rs. 4200 including his certain commission on total profit since he is a working partner and rest profit is received by B. What is the commission of A as a percentage of the total profit?

- A) 1200  
 B) 1350  
 C) 1400  
 D) 1150  
 E) None

[View Answer](#)

**Option E****Solution:**

Ratio of profit of A : B (excluding commission of A) =  $54000 : 90000 \Rightarrow 3 : 5$

Now the share of profit of B =  $4200 - 1200 = \text{Rs. } 3000$

So the share of profit A (excluding commission) =  $\text{Rs. } 1800$

So the commission of A =  $3000 - 1800 = 1200$

- 

The number of students in 3 classes are in the ratio 4:5:6. If 15 students are increased in each class this ratio changes to 11:13:15. The total number of students in the three classes in the beginning was

- A) 165

- B) 150
- C) 175
- D) 180
- E) None

[View Answer](#)

**Option B**

**Solution:**

Let the number of students in the classes be  $4x$ ,  $5x$  and  $6x$  respectively;

$$\text{Total students} = 4x + 5x + 6x = 15x.$$

Given ,

$$(4x+15)/(5x+15) = 11/13$$

$$3x=30 \Rightarrow x=10.$$

$$\text{Then Total no of students is } 15x=15*10=150.$$

- A, B and C have 40,  $x$  and  $y$  balls with them respectively. If B gives 20 balls to A, he is left with half as many balls as C. If together they had 60 more balls, each of them would have had 100 balls on an average. What is the ratio of  $x$  to  $y$ ?

- A) 4 : 3
- B) 3 : 2
- C) 2 : 3
- D) 2 : 5
- E) None

[View Answer](#)

**Option C**

**Solution:**

Given,

$$40+x+y+60/3=100$$

$$X+y=200-1$$

$$x-20=y/2$$

$$2x-y=40-2$$

Solving 1 and 2

We get

Ratio of  $x:y=2:3$

- The incomes of A, B, C are in the ratio of 12 : 9 : 7 and their spending are in the ratio 15 : 9 : 8. If A saves 25% of his income. What is the ratio of the savings of A, B and C respectively?

- A) 12:15:19
- B) 11:15:18
- C) 15: 18:11
- D) 21:24:29
- E) None

[View Answer](#)

**Option C****Solution:**

Let the income be  $12x$ ,  $9x$ ,  $7x$  and expenditure is  $15y$ ,  $9y$ ,  $8y$ .

$$I-E=S$$

$$A: 12x - 15y = 25\% \text{ of } 12x = 3x$$

$$9x - 15y \Rightarrow y = 3x/5$$

$$B: Saving = 9x - 9y$$

$$C: Saving = 7x - 8y$$

Substitute y value

Savings Ratio A:B:C

$$3x : 9x - 9 * 3x/5 : 7x - 8 * 3x/5$$

$$3x : 18x/5 : 11x/5 \Rightarrow 15:18:11$$

- A Student obtained equal marks in Maths and Science. The ratio of marks in Science and Social is 2:3 and the ratio of marks in Maths and English is 1 : 2. If he has scored an aggregate of 55% marks. The maximum marks in each subject is same. In how many subjects did he score greater than 50% marks?

- A) 1  
B) 2  
C) 3  
D) 4  
E) None

[View Answer](#)

**Option B****Solution:**

$$M:S=1:1, S:So= 2:3, M:E=1:2$$

$$\text{Then } M: S: So: E = 2:2:3:4$$

$$\text{Now } 2x + 2x + 3x + 4x/4 = 11x/4 = 55\%$$

$$X=20.$$

$$\text{So Marks, } M=40, S=40, So=60, E=80.$$

Above 50 mark is in 2 subjects.

- In a class, the ratio of boys to that of the girls is 9:8. If 8 more girls are admitted to the class, the ratio of the number of boys to that of the girls is
- A) 4:5  
B) 3:2  
C) 2:3  
D) 4:7  
E) None

[View Answer](#)

**Option C****Solution:**

$$G:B=130:100=13:10$$

Then  $(10+13)23 = 92$

G 13 52

B 10 40

If 8 girls admitted then total girls is  $52+8=60$

Now ratio of B:G=40:60=2:3.

- Rs 3440 is divided, among A, B, C and D such that B's share is  $6/11$ th of A's; C's share is  $1/4$ th of B's and D has  $2/5$ th as much as B and C together. Find A's share

A) 1760

B) 1540

C) 1320

D) 1850

E) None

[View Answer](#)

**Option A**

**Solution:**

Let A's share be 1

Then B's share is  $6/11 \times 1 = 6/11$

C's share is  $6/11 \times 1/4 = 3/22$

D's share is  $2/5 \times (6/11 + 3/22) = 3/11$

A:B:C:D=1:6/11:3/22:3/11=22:12:3:6

Total  $43(22+12+6+3) = 3440$

A's share  $22 \Rightarrow 1760$

- When 20 is added to the numerator and denominator, then the new ratio of numerator to denominator becomes 7:8. What is the original ratio?

A) 3:4

B) 4:5

C) 4:3

D) Can't be determined

E) None

[View Answer](#)

**Option B**

**Solution:**

Let the fraction be  $x/y$ .

Then  $(x+20)/(y+20) = 7/8$

We have two variables and only one equation so we can't find the solution.

- The value of the diamond is in proportion to the square of its weight. A diamond was broken into 3 parts in the ratio of 3: 4: 5, thus a loss of Rs.9.4 lakh is incurred. What is the actual value of diamond (in lakhs)?

A) 12

B) 13.5

- C) 11  
D) 14.4  
E) None

[View Answer](#)

**Option D**

**Solution:**

Ratio of broken parts is  $3x : 4x : 5x$   
 Value of broken parts of diamond is  $(3x)^2 + (4x)^2 + (5x)^2 = 50x^2$   
 The value of original diamond  $(3x+4x+5x)^2 = 144x^2$   
 Then loss in value  $= 144x^2 - 50x^2 = 94$  lakh  
 $x^2 = 10000$ .  
 The actual value of the diamond is  $144x^2 = 144$  lakh

- The ratio of the monthly salaries of P and Q is in the ratio 10 : 13 and that of Q and R is in the ratio 13 : 14. Find the monthly income (in Rupees) of R if the total of their monthly salary is Rs 1,85,000.  
 A) 70,000  
 B) 81,000  
 C) 55,000  
 D) 60,000  
 E) None

[View Answer](#)

**Option A**

**Solution:**

$P/Q = 10/13$  and  $Q/R = 13/14$   
 So  $P : Q : R = 10 : 13 : 14$   
 Total  $(10+13+14)$  is 37 == 1,85,000  
 So R's salary 14 ? ==> 70,000.

- Two candles of the same height are lighted at the same time. The first is consumed in 8 hrs and second in 4 hrs. At what time after being lit, the remaining part of the two candles become 3 : 1?  
 A) 2hrs 45min  
 B) 3hrs 12min  
 C) 3hrs 20min  
 D) 2hrs 25min  
 E) None

[View Answer](#)

**Option B**

**Solution:**

After x times ratio become 3:1.  
 Then  $(1-x/8)/(1-x/4)=3/1$

$$8-x/2(4-x)=3/1$$

$X=16/5$  hrs ie 3hrs 12min.

- 

A boat goes 24 km upstream and 54 km downstream in 6 hrs. In 8 hrs, it can go 36 km upstream and 48 km downstream. The speed (in km/hr) of the boat in still water is:

- A) 21  
B) 19.5  
C) 13.75  
D) 18  
E) None

[View Answer](#)

**Option B**

**Solution:**

General method

$$24/u-v+54/u+v=6 \text{ ---1}$$

$$36/u-v+48/u+v=8 \text{ ---2}$$

By solving 1 and 2 we got the ans.

Shortcut

$$U/s \dots \dots \dots D/s \dots \dots \dots t$$

$$24 \dots \dots \dots 54 \dots \dots \dots 6 \quad \text{common terms cut} = 4 \ 9 \ 1$$

$$36 \dots \dots \dots 48 \dots \dots \dots 8 \quad 9 \ 12 \ 2$$

$$u/s = (4*12)-(9*9)/(9*2)-(12*1) == u/s = 33/6 = 5.5$$

$$d/s = (4*12)-(9*9)/(4*2)-(9*1) == d/s = 33/1 = 33$$

$$\text{then } U = (33+5.5)/2 = 38.5/2 = 19.25$$

$$V = (33-5.5)/2 = 27.5/2 = 13.75$$

- A boat takes 30 hours for travelling downstream from point A to point B and coming back to point C midway between A and B. If the velocity of the stream is 5 km/hr and the speed of the boat in still water is 10 km/hr, what is the distance between A and B?

- A) 146km  
B) 150km  
C) 180km  
D) 190km  
E) None

[View Answer](#)

**Option C**

**Solution:**

$$\text{Downstream speed} = 10+5 = 15$$

$$\text{Upstream speed} = 10-5 = 5$$

Now total time is 30 hours

If distance between A and B is  $d$ , then distance BC =  $d/2$

Now distance/speed = time, so

$$\frac{d}{15} + \frac{(d/2)}{5} = 30$$

Solve,  $d = 180$  km.

- A boat takes 150 min less to travel 40 km downstream than to travel the same distance upstream. The speed of the stream is 4 km/hr. What is the downstream speed?

- A) 16 km/hr  
 B) 12 km/hr  
 C) 10 km/hr  
 D) 8 km/hr  
 E) None

[View Answer](#)

**Option A**

**Solution:**

Let speed of boat in still water =  $x$  km/hr

So speed upstream =  $x-4$ , and speed downstream =  $x+4$

Now given:

Time to travel 40 km downstream = time to travel 40 km upstream - 150/60

$$\text{So } \frac{40}{x+4} = \frac{40}{x-4} - \frac{5}{2}$$

$$\frac{8}{x-4} - \frac{8}{x+4} = \frac{1}{2}$$

$$\frac{x+4 - (x-4)}{(x^2 - 16)} = \frac{1}{16}$$

solve,  $x = 12$

so downstream speed =  $12+4=16$  km/hr.

- Two pipes can fill a tank with water in 15 and 12 hours respectively and a third pipe can empty it in 4 hours. If the pipes be opened in order at 10, 11 and 1 p.m. respectively, the tank will be emptied at

- A) 11 : 40 a.m.  
 B) 12 : 40 p.m.  
 C) 4.40 p.m.  
 D) 2.40 p.m.  
 E) None

[View Answer](#)

**Option B**

**Solution:**

Let tank will be emptied in  $x$  hrs after 10am

$$\frac{x}{15} + \frac{(x-1)}{12} - \frac{(x-3)}{4} = 0$$

$$x = 40/6 = 6 \frac{2}{3} \text{ hrs} = 6 \text{ hrs } 40 \text{ min}$$

Then It will be emptied in  $10+6.40=4.40$  p.m.

- Pipes A and B can fill a tank in 10 and 12 hours respectively. Pipe C can empty it in 20 hours. If all the three pipes are opened together, then the tank will be filled in (in hours):

- A) 7  
 B) 5.25

- C) 6
- D) 7.30
- E) None

[View Answer](#)

**Option D**

**Solution:**

Pipes A,B,C filled together in 1 hour  
 $=\frac{1}{10} + \frac{1}{12} - \frac{1}{20} = \frac{(12-3)}{60} = \frac{9}{60}$   
Tank filled in  $\frac{60}{9} = 7 \frac{1}{2}$ .

- An army lost 10% its men in war, 10% of the remaining due to diseases died and 10% of the rest were disabled. Thus, the strength was reduced to 729000 active men. Find the original strength.

- A) 10 Lakh
- B) 12Lakh
- C) 15Lakh
- D) 18Lakh
- E) None

[View Answer](#)

**Option A**

**Solution:**

Let army has 100 men.

10% loss in war, so remained are 90 men  
then,10% of 90 died due to diseases, remained  $90 - 9 = 81$   
then again, 10% of 81 again disabled  
So, remained men = 90% of 81  
90% of 81 = 729000  
 $(90 \times 81)/100 = 729000$   
1= 10000  
100 = 1000000  
then total men are 10,00,000.

- Wei [REDACTED] weight [REDACTED] If P's weight is increased by 10% and total of 15%. By what percent did the weight of Q has to be increased?

- A) 19%
- B) 22%
- C) 17.5%
- D) 12.5%
- E) None

[View Answer](#)

**Option A**

**Solution:**

10.....x

.....15

$x-15 : 15-10$

Now, given ratio of P and Q's weight = 4:5

Hence,  $(x-15)/(15-10) = 4/5$

$x = 19\%$ .

- A shopkeeper sold a T.V. set for Rs. 17,940 with a discount of 8% and earned a profit of 19.6%. What would have been the percentage of earned if no discount was offered?

A) 25%

B) 30%

C) 22.5%

D) 40%

E) None

[View Answer](#)

**Option B**

**Solution:**

SP=Rs 17,940.

MP =  $17940 * 100 / 92 = 19500$

CP =  $17940 * 100 / 119.6 = 15000$

So profit without discount =  $19500 - 15000 = 4500$

- Fresh grapes contain 80% water, while dry grapes contain 10% water. If the weight of dry grapes is 500 kg, then what is its total weight (in kg) when it is fresh?

A) 2000

B) 2200

C) 2250

D) 2800

E) None

[View Answer](#)

**Option C**

**Solution:**

weight

Since weight of water in dry grapes = weight of grape pulp in 500 kg of dry grapes

= 90% of 500 = 450 kg

Let x be its total weight when it is fresh.

Fresh grapes contain 80% water. Therefore, 20% of x is 450 kg

$100\% \text{ of } x = 450 \times 5 = 2250$

- If a 36 inches long strip cloth shrinks to 33 inches after being washed, how many inches long will the same strip remain after washing if it were 48 inches long?

A) 44 inches

B) 46 inches

C) 55 inches

D) 60 inches

E) None

### **View Answer**

## Option A

**Solution:**

$$\begin{aligned}\text{Shrinking of cloth,} \\ = [(36-33)/36]*100. \\ \equiv 100/12\%\end{aligned}$$

Second time the strip shrinks,  
 $= (48*100)/1200 = 4$  inches  
 hence , the cloth remains = 48-

- Two vessels contain mixtures of milk and water in the ratio of 4:9 in the first vessel and in the ratio of 2:7 in the second. In what ratio should the contents of these two vessels be mixed such that the resultant mixture has milk and water in the ratio of 2:5?

- A) 26:9
  - B) 14:10
  - C) 25:18
  - D) 22:8
  - E) None

## **View Answer**

## Option A

**Solution:**

Milk in 1st vessel 4/13

Milk in 2nd vessel 2/9

## Milk in mixed vessel 2/7

$$\begin{array}{rcl}
 4/13 & \dots & 2/9 \\
 \dots & & 2/7 \\
 2/7 - 2/9 & \dots & 4/13 - 2/7 \\
 4/63 & & 2/91 \\
 \hline
 \text{---} > 4/9 : 2/13 = 26:9
 \end{array}$$

- A alone can do a piece of work in 10 days and B alone in 12 days. If they work together, they will finish the work in less time than both A and B would together. If B worked alone, he would take more time than both A and B working together. How many days A and B together can do it.

- A) 6
  - B) 10
  - C) 4
  - D) 15
  - E) None

## **View Answer**

### Option C

**Solution:**

let A and B work together is x, then  $A=x+8$ ,  $B=x+2$

Then  $x = (x+8)(x+2)/(x+8) + (x+2)$

$$x = [x^2 + 10x + 16]/(2x+10)$$

$$\Rightarrow 2x^2 + 10x = x^2 + 10x + 16$$

$$x^2 = 16$$

$$\Rightarrow x = 4$$

- In how many different ways the letters of the word CALCULATOR be arranged in such a way that all vowels always come together?

A) 45320

B) 49635

C) 52300

D) 60480

E) None

[View Answer](#)

**Option D**

**Solution:**

CALCULATOR  $\Rightarrow$  vowels AUAO =  $7!(\text{letters} + \text{vowels}) * 4!$

For repetition 2!

Then  $7! * 4! / 2!$

- Incomes of two companies A and B are in the ratio of 2:3. Had the income of company A been more by Rs 20 lakh, the ratio of their incomes would have been 10 : 9. What is the income of company B?

A) Rs 80 lakh

B) Rs 45 lakh

C) Rs 52 lakh

D) Rs 46 lakh

E) None

[View Answer](#)

**Option P**

**Solution:**

$$(2x+20)$$

$$18x + 180 = 30x$$

$$x = 15.$$

Then  $B = 3 * 15 = 45$  Lakhs

- How many different 4 – digit numbers can be formed by using the digits of the number 86593247 ?

A) 1680

B) 1920

C) 1540

D) 1620

E) None

[View Answer](#)

**Option A**

**Solution:**

Out of 8 digit 4 digit no must selected.

$$nPr = n! / (n-r)!$$

$$8P4=8!/(8-4)!$$

$$8*7*6*5=1680$$

- Sam purchased an item for Rs 7200 and sold it at a loss of 5% , from that money he purchased another item and sold it at a gain of 5% what is his over all gain/loss?

A) Rs 18 loss

B) Rs36 loss

C) Rs18 gain

D) Rs36 gain

E) None

[View Answer](#)

**Option A**

**Solution:**

$$7200*(95/100)*150/100 \Rightarrow 7182$$

Then  $7200 - 7182 = 18$  loss.

- In a mixture 55 litres, the ratio of milk and water 5 : 6. If the this ratio is to be 6 : 5, then the quantity of milk to be further added is:

A) 12l

B) 15l

C) 11l

D) 18l

E) None

[View Answer](#)

**Option C**

**Solution:**

Total 55 Litres

Ratio 5:6

Then  $11 == 55$

$5 ? == 25$

$6 ? == 30$

Then  $(25+x)/30=6/5$

$$125+5x = 180$$

$$\Rightarrow x=11 \text{ litres.}$$

- A shopkeeper bought 75kg rice at the rate of Rs 16/kg. He sold 35kg of it at 20% profit and the remaining 40kg at 15% profit. What is his total profit % ge in this transaction ?

- A) 15 1/3
- B) 16 1/4
- C) 17 2/3
- D) 18 2/3
- E) None

[View Answer](#)

**Option C**

**Solution:**

$$75*(100+x/100)=35*120/100+40*115/100$$

$$75x = 700+600$$

$$X=1300/75==>17 \frac{2}{3}.$$

(Or)

$$75x=35*20+40*15$$

$$X=1300/75==>17 \frac{2}{3}$$

- The average weight of a group of 20 boys was calculated to be 89.4 kg and it was later discovered that one weight was misread as 78 kg instead of the correct one of 87 kg. The correct average weight is:

- A) 88.95kg
- B) 89.25kg
- C) 89.55kg
- D) 89.85kg
- E) None

[View Answer](#)

**Option D**

**Solution:**

$$\text{Total actual weight} = (89.4 \times 20 - 78 + 87) \text{ kg}$$

$$= 1797 \text{ kg.}$$

$\therefore$  Corr

- In a [REDACTED], Lokesh ranked thirty fifth from the top, if there are 10 girls ahead of Lokesh , how many boys are after him in rank?

- A) 20
- B) 16
- C) 15
- D) 25
- E) None

[View Answer](#)

**Option C**

**Solution:**

$$\text{No of boys} = x; \text{ No of girls} = 2x;$$

$$x+2x = 120 \Rightarrow 3x = 120$$

$$x (\text{Boys}) = 40 ; 2x(\text{Girls}) = 80$$

$$\text{Number of student behind Lokesh} = 120 - 35 = 85$$

$$\text{No of girls behind Lokesh} = 80 - 10 = 70$$

$$\text{No of boys behind Lokesh} = 85 - 70 = 15$$

1. In a partnership , P invests 1/2 of the capital for 1/2 of the time , Q invests 1/6 of the capital for 1/6 of the time and R , the rest of the capital for the whole time. What is the share of R in the profit Rs. 6600.?
- A) Rs3600
  - B) Rs1500
  - C) Rs2000
  - D) Rs3000
  - E) None

[View Answer](#)

#### Option A

##### Solution:

If P invest  $x/2$  Rs for  $y/2$  month and Q invest  $x/6$  for  $y/6$  month

Then  $R=x-x/2-x/6=x/3$  for  $y$  month.

Then ratio become  $x/2 * y/2 : x/6 * y/6 : x/3 * y \Rightarrow 1/4 : 1/36 : 1/3 \Rightarrow 9 : 1 : 12$

Then R 's share is  $6600 * 12 / 22 = \text{Rs } 3600$

2. In a business, the Capital of B was  $3/4$  times that of A. After 8 Months B withdrew  $3/4$  of his Capital and after 10 months A withdrew  $1/2$  th of his Capital. At the end of the year, if the total profit Rs. 35,500/- . Find the amount received by A in Rs. ?
- A) Rs.25,800
  - B) Rs. 30,000
  - C) Rs. 33,000
  - D) Rs. 22,000
  - E) None

[View Answer](#)

#### Option D

##### Solution:

Let capital of A be  $4x$

Then, capital of B be  $3x$

After 8month B withdrew  $3/4$  of capital so left with  $3x - 3/4 * 3x = 3x/4$

After 10 month A withdrew  $1/2$  of capital ie  $4x/2$

Ratio become  $(4x * 10) + (4x/2 * 2) : (3x * 8) + (3x/4 * 4) \Rightarrow 44 : 27$

Then  $(44+27)/71 * 35500$

Then A's amount  $44 ? \Rightarrow \text{Rs } 22,000$ .

3. Two equal sums of money were invested one at 6% and another at  $6\frac{1}{2}\%$ . At the end of 8 yrs the S.I received on the latter exceeded that received on the former by Rs87.2. Find each sum.
- A) Rs 2160
  - B) Rs2180
  - C) Rs1090
  - D) Rs2184
  - E) None

[View Answer](#)

**Option B**

**Solution:**

For Rs 100 6% interest is Rs6 and for Rs 100  $6\frac{1}{2}\%$  interest is  $6\frac{1}{2}$ .

For Rs 100 interest difference is  $6\frac{1}{2}-6=1\frac{1}{2}$

This  $\frac{1}{2}$  ie 50 paise diff is for 1 yr.

Now for 8 yrs it becomes  $8 \times 0.5 = 4$  Rs

For 100 4(8 yrs)

?  $87.2(\text{diff}) ==> 25 \times 87.2 = \text{Rs}2180$

4. A man lent out Rs.9600 at  $7\frac{1}{4}\%$  per annum for a year and 6 months. At the end of the duration, the amount he earned as S.I was:
- A) Rs.350
  - B) Rs.556
  - C) Rs. 242
  - D) Rs.322
  - E) None

[View Answer](#)

**Option C**

**Solution:**

Given  $P = \text{Rs.}9600$ ,  $R = 7\frac{1}{4}\%$  and  $N = 1$  year and 6 months =  $1 + \frac{6}{12}$  year =  $3\frac{1}{2}$  years.

$S.I = PNR/100 ==> (9600 * 3\frac{1}{2} * 7\frac{1}{4})/100 = \text{Rs}242$

5. Sheela sold an article for Rs. 8000 and incurred a loss. Had she sold the article for Rs.9500, his gain would have been equal to half of the amount of loss that he incurred. At what price should he sell the article to have 30% profit?
- A) Rs.850
  - B) Rs.9000
  - C) Rs.11700
  - D) Rs 10560
  - E) None

[View Answer](#)

**Option C****Solution:**

Let the cost price be  $x$ .

$$\text{Then, loss} = (x - 8000)$$

$$\text{Again, profit} = (9500 - x)$$

$$\text{Now, } (9500 - x) = (x - 8000)/2$$

$$3x = 19000 + 8000 = 27000$$

$$x = 27000/3 = 9000$$

$$\text{Selling price} = (9000 \times 130)/100 = \text{Rs. 11700}$$

6. The price of a car is Rs. 6,50,000. It was insured for 70% of its price. The car got completely damaged and the insurance company paid 80% of the insured amount. What is the price of the difference between the price of the car and the amount of insurance received?

- A) Rs2,86,000
- B) Rs3,42,000
- C) Rs2,40,000
- D) Rs2,85,000
- E) None

[View Answer](#)

**Option A****Solution:**

Total value = 100%

Car was insured to 70% of its price

Insurance company paid 80% of the insurance.

$$\text{Then } 100 \times 70 / 100 \times 80 / 100 = 56\%$$

Difference% is  $100 - 56 = 44\%$

$$6,50,000 \times 44 / 100 = 2,86,000.$$

7. A shopkeeper marks up his goods by 30% and then gives a discount of 30%. Besides he cheats both his supplier and customer by 100 g, i.e., he takes 1100 g from his supplier and sells only 900 g to his customer. What is his net profit percentage? (Rounded off to two decimal points)

- A) 12.33
- B) 13.65
- C) 11.22
- D) 10.45
- E) None

[View Answer](#)

**Option C****Solution:**

Loss is  $-30 + 30 - (30 \times 30 / 100) = 9\%$  loss

$$\text{Profit} = (1100 - 900) = (200 / 900) \times 100 = 200 / 9\%$$

Profit %ge is  $-9 + 200/9 - (9*200/9/100) = 101/9 = 11.22$

8. The average of marks obtained by 150 candidates was 29. If the average of the passed candidates was 35 and that of the failed candidates was 20, then the number of those candidates, who passed the examination was:
- A) 80
  - B) 60
  - C) 20
  - D) 90
  - E) None

[View Answer](#)

**Option D**

**Solution:**

If the number of candidates passed =  $x$

$$\therefore 35x + 20(150 - x) = 150 \times 29$$

$$\Rightarrow x = 90$$

9. An alloy contains only sulphur and aluminium. One such alloy weighing 25 gm contains sulphur and aluminium in the ratio of 3 : 2 by weight. If 15 gm of sulphur is added then find what amount of aluminium has to be removed from the alloy such that the final alloy has sulphur and aluminium in the ratio of 7 : 2 by weight?
- A) 2 gm
  - B) 1.4 gm
  - C) 3 gm
  - D) 3.8 gm
  - E) None

[View Answer](#)

**Option B**

**Solution:**

Alloy has 25gm in the ratio 3:2

Then 5 25

3 ?= 15gm sulphur

2 ?= 10gm aluminium

Now 15gm sulphur added and  $x$  gm of aluminium removed

Then  $15+15/10-x=7/2=10/7=1.4\text{gm}$

10. A bank offers 5% compound interest calculated on half-yearly basis. A customer deposits Rs. 1600 each on 1st January and 1st July of a year. At the end of the year, the amount he would have gained by way of interest is:
- A) 121
  - B) 160
  - C) 240

- D) 260  
E) None

[View Answer](#)

**Option A**

**Solution:**

amount=  $p[1+(R/2)/100]^2n$  here n is 1 year

so amount =  $1600[1+(5/2)/100]^2$

$$=1600[1+(5/200)]^2$$

$$=1681.$$

amount of money deposited on july

amount= $p[1+(R/2)/100]^2n$  n=1/2 yr

$$=1600[1+(5/200)]$$

$$=1640.$$

add both amounts

$$1681+1640=3321$$

1600 twice the customer deposited  $1600*2=3200$

$$3321-3200=121.$$

1. A box contains tickets numbered 1 to 160. One ticket is drawn at random. What is the probability that the number on ticket is a multiple of either 3 or 5?
- A) 17/32  
B) 15/32  
C) 5/8  
D) 3/8  
E) None of these

[View Answer](#)

**Option B**

**Solution:**

Multiples of 3 up to 160 =  $160/3 = 53$  (take only whole number before the decimal part)

Multiples of 5 up to 160 =  $160/5 = 32$

Multiples of 15 ( $3 \times 5$ ) up to 160 =  $160/15 = 10$

So total such numbers are =  $53 + 32 - 10 = 75$

So required probability =  $75/160 = 15/32$

2. A and B started a business by investing Rs 2500 and Rs 2800 respectively. After 3 months, A invested Rs 200 more and at the same time B withdrew Rs 400 from his investment. If after the end of 10 months from the start of business, total profit earned by them is Rs 28,380, what is A's share from it?
- A) Rs 14830  
B) Rs 19240  
C) Rs 13820

- D) Rs 13760  
E) Rs 14520

[View Answer](#)

**Option E**

**Solution:**

Ratio of profit share of A : B is

$$2500 \cdot 3 + 2700 \cdot 7 : 2800 \cdot 3 + 2400 \cdot 7$$

$$25 \cdot 3 + 27 \cdot 7 : 28 \cdot 3 + 24 \cdot 7$$

$$25 + 9 \cdot 7 : 28 + 8 \cdot 7$$

$$25 + 63 : 28 + 56$$

$$88 : 84$$

$$22 : 21$$

$$\text{So A's share} = 22/(22+21) * 28380 = \text{Rs } 14520$$

3. Ratio of age of A 3 years hence to age of B 3 years ago is 9 : 10. Also after 7 years B's age will be twice A's age 4 years ago. A is younger than B by how many years?  
A) 9 years  
B) 5 years  
C) 7 years  
D) 6 years  
E) 8 years

[View Answer](#)

**Option A**

**Solution:**

$$(A+3)/(B-3) = 9/10$$

$$(B+7) = 2(A-4)$$

Solve both

$$A = 24, B = 33$$

4. A person invested a total of Rs 6000 in two schemes A and B. Scheme A offers 20% rate of interest at compound interest and scheme B offers 12% per annum rate of interest. If after 2 years the person got a total of Rs 8140, what is the amount invested in scheme A?  
A) Rs 2500  
B) Rs 3000  
C) Rs 4500  
D) Rs 3500  
E) Rs 4000

[View Answer](#)

**Option D****Solution:**

Let amount invested in scheme A = Rs  $x$ , so in B = Rs  $(6000-x)$

Interest after 2 years = 8140-6000 = Rs 2140

So

$$(x * [1 + 20/100]2 - x) + (6000-x)*12*2/100 = 2140$$

$$36x/25 - x + 1440 - 6x/25 = 2140$$

$$x/5 = 2140 - 1440$$

$$\text{Solve, } x = \text{Rs } 3500$$

So amount invested in scheme A = Rs 3500

5. 15 men can complete a work in 8 days. Same work can be completed by 20 women in 12 days. Two groups are made containing 10 men and 15 women respectively. Both groups work alternately for 4 days each starting with men's group. In this how many days the work will get completed?

- A) 15 days
- B) 13 1/3 days
- C) 20 days
- D) 16 2/3 days
- E) 12 days

[View Answer](#)

**Option B****Solution:**

15 men in 8 days, so 10 men in  $15*8/10 = 12$  days

20 women in 12 days, so 15 women in  $20*12/15 = 16$  days

10 men 1 work in 12 days, so in 4 days they do  $4/12 = 1/3$ rd word

15 women 1 work in 16 days, so in 4 days they do  $4/16 = 1/4$ th work

in 1st 4 days work done =  $1/3$ , in next 4 days work done =  $1/4$ , in next 4 days men's turn so they did  $1/3$  work

Up to now work done is  $1/3 + 1/4 + 1/3 = 11/12$

Remaining work =  $1 - 11/12 = 1/12$

Now women's turn

15 women 1 work in 16 days, so  $1/12$  work in  $1/12 * 16 = 4/3$  days =  $1 \frac{1}{3}$  days

so total days =  $4+4+4+1 \frac{1}{3} = 13 \frac{1}{3}$  days

6. A businessman sells a commodity at 20% profit. If he had bought it 20% less and sold it for Rs 6 less, then he would have gained 25%. What is the cost price of the commodity?

- A) Rs. 10
- B) Rs. 25
- C) Rs. 40
- D) Rs. 30
- E) Rs. 55

[View Answer](#)

**Option D****Solution:**

20% profit = 1/5. So CP = 5, SP =  $5+1 = 6$

Now make CP 20% less, CP becomes =  $80/100 * 5 = 4$ , Now there is 25% profit So SP becomes 5

Original SP = 6, final = 5. Difference is 1

So 1 == 6 [Rs 6 less] So CP = 5 == 30

7. A train starts from point A and moves towards B. It met with an accident after 35km and covered remaining distance at  $\frac{2}{3}$ rd of its speed and it was late by 30 minutes. If the accident happened 20km earlier then the train would be 15 minutes late. Find the distance?
- A) 64 km
  - B) 73 km
  - C) 80 km
  - D) 85 km
  - E) 75 km

[View Answer](#)

**Option E****Solution:**

It saves 15 min in 20 km

So for 30min it covers  $20/15 * 30 = 40$  km

So distance =  $40 + 35 = 75$  km

8. In a bag there are three types of coins, 1 rupee, 50 paisa and 25 paisa in the ratio of 6:10:12. Their total value is Rs 224. The total number of coins is?
- A) 425
  - B) 484
  - C) 448
  - D) 434
  - E) 440

[View Answer](#)

**Option C****Solution:**

First make ratio according to rupee

$6 * 1 : 10 * \frac{1}{2} : 12 * \frac{1}{4}$

6 : 5 : 3

$(6+5+3) 14 = 224$

$1 = 16$

$(6+10+12) = 28 = 28 * 16 = 448$

9. A boat can row to a place 48 km away and come back in 20 hours. The time to row 24 km with the stream is same as the time to row 16 km against the stream. Find the speed of boat in still water.
- A) 1.5 kmph
  - B) 3.5 kmph
  - C) 5.5 kmph
  - D) 7.5 kmph
  - E) None of these

[View Answer](#)

**Option E**

**Solution:**

$$\text{Downstream speed} = 24/x \text{ km/hr}$$

$$\text{Upstream speed} = 16/x \text{ km/hr}$$

$$48/(24/x) + 48/(16/x) = 20$$

$$\text{Solve, } x = 4 \text{ km/hr}$$

So, downstream speed = 6 km/hr, upstream speed = 4 km/hr

$$\text{Speed of boat} = 1/2 * (6 + 4) \text{ km/hr} = 5 \text{ km/hr}$$

10. From a deck of 52 cards, two cards are selected at random. Find the probability of getting at least one spade.
- A) 9/34
  - B) 11/32
  - C) 15/34
  - D) 4/17
  - E) 6/17

[View Answer](#)

**Option C**

**Solution:**

Case 1: 1 spade

$$\text{Probability} = {}^{13}C_1 * {}^{39}C_1 / {}^{52}C_2 = 13/34$$

Case 2 : Both spades

$$\text{Probability} = {}^{13}C_2 / {}^{52}C_2 = 1/17$$

$$\text{Add both cases} = 13/34 + 1/17 = 15/34$$

1. A cistern can be filled by two pipes in 15 minutes and 25 minutes respectively. Both pipes are opened together for a certain time, only  $5/6$  of quantity of water flows through the former and  $5/8$  through the other pipe. The obstruction is removed, the cistern is filled by in 5 minutes from that moment. How long was it before the full flow began?
- A) 168/29 min.
  - B) 115/21 min.
  - C) 145/12 min.

- D)  $125/11$  min.  
E)  $144/13$  min.

[View Answer](#)

**Option A**

**Solution:**

$$\begin{array}{c} \text{Pipe I} \xrightarrow{\hspace{1cm}} \text{Pipe II} \\ 15 \xrightarrow{\hspace{1cm}} 25 \end{array}$$

$$\text{LCM} = 75$$

$$\text{Pipe I} = 5 * (5/6) = 25/6$$

$$\text{Pipe II} = 3 * (5/8) = 15/8$$

$$\text{Decreased efficiency} = (25/6) + (15/8) = 145/24$$

$$\text{Pipe I} + \text{Pipe II} = (3+5 \text{ efficiency both take } 5 \text{ minutes}) = 8 * 5 = 40 \text{ unit}$$

$$\text{Pipe I and Pipe II} = 75 - 40 = 35 \text{ units}$$

$$\text{Therefore, time take to fill the cistern} = (35 * 24) / 145 = 168/29 \text{ minutes}$$

2. There are two articles and the sum of cost prices of these articles is Rs. 500. One of them was sold at a profit of 20% and another at a loss of 20%. Besides if the selling prices of both the articles were same, find the loss.

- A) Rs.40  
B) Rs.32  
C) Rs.25  
D) Rs.20  
E) Rs.30

[View Answer](#)

**Option D**

**Solution:**

$$x * (120/100) = (500-x)(80/100)$$

$$\Rightarrow x = 200$$

$$\text{CP of article sold at profit} = 200$$

$$\text{CP of article sold at loss} = 300$$

$$\text{Common SP} = 300 * 80/100 \text{ or } = 200 * 120/100 = 240$$

$$\text{Loss} = \text{CP} - \text{SP} = 500 - (2 * 240) = \text{Rs.20}$$

3. Divide Rs. 2000 into two sums such that, if the first be put out at simple interest for 6 years at  $3(1/2)$  per cent, and the second for 3 years at  $4(1/2)$  per cent, the interest of the first sum would be double that of the second. Find the second part.

- A) Rs.800  
B) Rs.758  
C) Rs.875  
D) Rs.790  
E) Rs.755

[View Answer](#)**Option C****Solution:**

Let the first part be  $x$  and the second part be  $(2000-x)$

$$\text{Interest on the first part} = (x \cdot 6 \cdot 7) / (100 \cdot 2) = 21x/100$$

$$\begin{aligned}\text{Interest on the second part} &= [(2000-x) \cdot 3 \cdot 9] / (100 \cdot 2) \\ &= [27 \cdot (2000-x)] / 200\end{aligned}$$

Now,

$$21x/100 = 2 \cdot [27 \cdot (2000-x)] / 200$$

$$\Rightarrow x = 1125$$

Hence, first part = Rs. 1125 and second part =  $(2000-1125) = \text{Rs.} 875$

4. In a zoo , the zoo authority announces 40% discount on every ticket which costs 50 paise in order to attract more visitors. For this reason, sale off ticket increase by 50%. Find the percentage increase in the number of visitors.

- A) 90%
- B) 150%
- C) 100%
- D) 98%
- E) 112%

[View Answer](#)**Option B****Solution:**

Let the number of visitors be 100.

$$\text{Total revenue} = 0.50 * 100 = \text{Rs.} 50$$

$$\text{New price} = 0.50 \cdot (60/100) = 30 \text{ paise}$$

$$\text{New revenue} = 50 \cdot (150/100) = \text{Rs.} 75$$

$$\text{Number of visitors} = 75/0.30 = 250$$

$$\% \text{ change in number} = [(250 - 100)/100] * 100 = 150\%$$

5. In an office the average age of all the female employees is 21 years and that of male employees is 32 years, where the average age of all the (male and female) employees is 28 years. Find the total number of employees in the office.

- A) 150
- B) 231
- C) 200
- D) 180
- E) 115

[View Answer](#)**Option B****Solution:**

21—————32

—28

4 : 7

$$4+7 = 11$$

Hence,

The total number of employees should be multiples of 11.

6. In a business, there are two investors who invest Rs. 50,000 and Rs. 65000 resp. and agree that 60% of the profit should be divided equally between them and the remaining profit is to be divided into the ratio of their capitals. If one partner gets Rs. 300 more than the other. Find the total profit.

- A) Rs. 5520
- B) Rs. 4850
- C) Rs. 5400
- D) Rs. 5750
- E) Rs. 3460

[View Answer](#)

#### Option D

**Solution:**

Ratio of investments is  $50 : 65 = 10 : 13$

The difference of Rs 300 is in the profit of investments ratio

If  $x$  is total profit, then 40% of  $x$  is divided in the ratio of investment. So

$$\frac{13}{23} * \frac{40x}{100} = \frac{10}{23} * \frac{40x}{100} + 300$$

Solve,  $x = \text{Rs } 5750$

7. In a conical flask , the radius of the base and the height of the flask is in the ratio 5:12  
If the volume of the cone is  $314 \left(\frac{2}{7}\right) \text{ cm}^3$ . What is the slant height of the conical flask?

- A) 14 cm
- B) 13 cm
- C) 10 cm
- D) 15 cm
- E) 18 cm

[View Answer](#)

#### Option B

**Solution:**

Let the radius be  $5x$  and the height be  $12x$  .

Then,

$$\left(\frac{1}{3}\right) * \pi * 25x^2 * 12x = 2200/7$$

$$\Rightarrow x = 1$$

$$\text{slant height} = \sqrt{(5)^2 + (12)^2} = 13 \text{ cm}$$

8. A bus agency has 162 buses. He sold some buses at 9% profit and rest at 36% profit. Thus he gains 17% on the sale of all his buses. What is the number of buses sold at 36% profit?
- A) 25  
B) 48  
C) 30  
D) 34  
E) 40

[View Answer](#)

**Option B**

**Solution:**

$$9\% \text{ ----- } 36\%$$

$$\text{----- } 17\%$$

$$19 : 8$$

$$27 \text{ ----- } 162$$

$$1 \text{ ----- } 6$$

$$\text{Number of buses sold at 36\% profit} = 8 * 6 = 48$$

9. 12 similar balls are placed in three distinct baskets, such that no basket is empty. In how many ways it can be done?
- A) 48  
B) 50  
C) 70  
D) 54  
E) 55

[View Answer](#)

**Option E**

**Solution:**

When  $n$  similar objects are to be distributed in  $k$  distinct objects, ways are  ${}^{(n-1)}C_{(k-1)}$

$$\text{Required ways} = 11C2 = 55$$

10. From a deck of 52 cards two cards are selected at random. Find the probability of getting one heart and one club.
- A) 12/110  
B) 11/102  
C) 13/102  
D) 14/112  
E) 15/122

[View Answer](#)

**Option C****Solution:**

$$\text{Required probability} = (13C1 * 13C1)/52C2 = 13/102$$

1. A and B together can complete a work in 8 days, B and C in 15 days and C and A in 12 days. They all started work together. After working for 4 days, B left the work. A and C next worked for 3 day after which A also left. Find in how many can C alone complete the work?
- A) 25 days  
B) 16 days  
C) 21 days  
D) 13 days  
E) 22 days

[View Answer](#)**Option B****Solution:**

$$\text{A, B and C together can complete work in } = 2*8*15*20/(8*15 + 15*20 + 20*8) = 80/11 \text{ days}$$

Worked for 4 days, so they did  $4 * 11/80 = 11/20$  work

Now A and C worked for 3 days, in 3 days they did  $= 3 * 1/12 = 1/4$  work

$$\text{So now remaining work} = 1 - (11/20 + 1/4) = 1/5$$

C can complete whole work in  $- 11/80 - 1/8 = 1/80 - 80$  days

$$\text{So } 1/5 \text{ work in } 1/5 * 80 = 16 \text{ days}$$

2. A and B alone can complete a work in 10 and 18 days respectively. Both started the work. After 3 days, A left and C joined B. If they completed the remaining work in 6 days, find the number of days in which C can alone complete the whole work?
- A) 30 days  
B) 16 days  
C) 24 days  
D) 18 days  
E) 32 days

[View Answer](#)**Option A****Solution:**

$$\text{A and B in one day} = 1/10 + 1/18 = 7/45 \text{ work}$$

$$\text{So in 3 days they did} = 3 * 7/45 = 7/15 \text{ work}$$

$$\text{Remaining work} = 1 - 7/15 = 8/15$$

Let C can complete work in x days. So

$$(1/18 + 1/x) * 6 = 8/15$$

$$\text{Solve, } x = 30 \text{ days}$$

3. A is twice efficient than B who is one and a half times efficient than C. If C alone can complete a work in 18 days, then in how many days, A, B and C together can complete  $\frac{11}{18}$  of work in how many days?
- A) 6 days
  - B) 3 days
  - C) 9 days
  - D) 4 days
  - E) 2 days

[View Answer](#)

**Option E**

**Solution:**

Efficiency ratio of A : B : C =  $3x : 3x/2 : x = 6 : 3 : 2$

So ratio of no. of days of A : B : C is  $1/6 : 1/3 : 1/2 = 1 : 2 : 3$

Now C can complete work in 18 days, so

$3 == 18$

$1 == 6$

So A can complete work in  $1 == 6$  days and

B can complete work in  $2 == 12$  days

All together –  $1/6 + 1/12 + 1/18 = 11/36$  work in 1 day

So  $11/18$  work in  $11/18 * 36/11 = 2$  days

4. 20 men complete a work in 16 days and 25 women can complete the same work in 18 days. 8 men and 15 women started the work together. They worked for some number of days. After they left the work, 48 children joined the work and complete the work in 4 days. If efficiency of 1 man is double the efficiency of 1 child, how many days they took to complete the whole work?
- A) 12 days
  - B) 16 days
  - C) 9 days
  - D) 20 days
  - E) 15 days

[View Answer](#)

**Option B**

**Solution:**

20 m in 16 days, so  $8 m$  in  $20*16/8 = 40$  days

25 w in 18 days, so  $15 w$  in  $25*18/15 = 30$  days

They worked for some no. of days, so did  $(1/40 + 1/30)*x = 7x/120$  work ..... (1)

1 man can complete work in  $20*16 = 320$  days. So 1 child whose efficiency is half the man, can complete whole work in  $320*2 = 640$  days.

So 48 children in  $640/48$  days

They worked for 4 days, so did  $4 * 48/640 = 3/10$  of work

So remaining  $7/10$  was done by 8 men and 15 women..... (2)

From (1) and (2)

$7x/120 = 7/10$

$$x = 12 \text{ days}$$

So total no. of days =  $12+4 = 16$  days

5. A camp was organized for 20 men. The food given to them can last for 40 days. After 25 days, 5 men left the camp. Find for how many more days, the remaining men can eat remaining food?
- A) 10 days
  - B) 2 days
  - C) 6 days
  - D) 5 days
  - E) 8 days

[View Answer](#)

#### Option D

##### Solution:

After 25 days, food left for 20 men for 15 days. Now there are 15 men. So

$$20*15 = 15*x$$

Solve,  $x = 20$  days

So extra days =  $20-15 = 5$  days

6. 25 kg of rice at Rs 20 per kg was mixed with some amount of rice at Rs 32 per kg. The whole mixture was sold at 20% profit for Rs 32.4 per kg. Find the amount of second variety of rice (priced at Rs 32 per kg).
- A) 30 kg
  - B) 45 kg
  - C) 24 kg
  - D) 35 kg
  - E) 27 kg

[View Answer](#)

#### Option D

##### Solution:

SP = 32.4, profit = 20%, so CP =  $100/120 * 32.4 = \text{Rs } 27$

So by method of allegation:

$$\begin{array}{rcl} (25 \text{ kg}) & \dots & (x \text{ kg}) \\ 20 & \dots & 32 \\ & \dots & 27 \\ 5 & \dots & 7 \\ 5 == 25 & & \\ 1 == 5 & & \\ 7 == 35 \text{ kg} & & \end{array}$$

7. There are 2 mixtures which contains mixture of cereals A and B. Mixture 1 contains A and B in the ratio 4 : 5. Mixture 2 contains A and B in the ratio 8 : 3. Both the mixtures are mixed to form a third mixture. Now the ratio of A : B becomes 8 : 5 in the resultant mixture. If the resultant quantity is 364 kg of cereals, then find the amount of cereal B in

the mixture.

- A) 130 kg
- B) 150 kg
- C) 180 kg
- D) 240 kg
- E) 220 kg

[View Answer](#)

**Option E**

**Solution:**

B in mixture 1 =  $5/9$ , in mixture 2 =  $3/11$  and in resultant mixture =  $5/13$

So

$$\begin{array}{rcl} 5/9 & \dots & 3/11 \\ \dots & 5/13 \end{array}$$

$$16/11 * 13 \dots 20/9 * 13$$

36 : 55

So amount of cereal B in 364 kg =  $55/91 * 364 = 220$  kg

8. A 84 litres mixture contains A and B in ratio 3 : 4. 14 litres of this mixture is taken out and replaced by 10 litres of B. The resultant mixture will contain how much percent of A?
- A) 52.2%
  - B) 46.7%
  - C) 67.5%
  - D) 23.4%
  - E) 37.5%

[View Answer](#)

**Option E**

**Solution:**

Total mixture = 84 l

So A in resultant mixture =  $36 - 3/7 * 14 = 30$  l

and B in resultant mixture =  $48 - 4/7 * 14 + 10 = 50$  l

So final ratio of A and B = 3 : 5

So % of A in final mixture =  $3/8 * 100 = 37.5\%$

9. A mixture contains  $\frac{4}{5}$ th part of alcohol and rest water. How much mixture should be taken out and replaced with water to make the ratio of alcohol to water reversible?
- A) 3.45 l
  - B) 3.75 l
  - C) 4.25 l
  - D) 4.65 l
  - E) 5.35 l

[View Answer](#)**Option B****Solution:**

Let total quantity = 5

So alcohol = 4, water = 1. so ratio = 4 : 1

Let mixture to be taken = x, and final ratio should be 1 : 4

So  $[4 - 4/5 * x] / [1 - 1/5 * x + x] = 1/4$

Solve,  $x = 3.75l$

10. There are 2 mixtures. Mixture P contains A, B and C in ratio 4 : 3 : 2. Mixture Q contains A and B in the ratio 1 : 4. If 4 litres of mixture P is mixed with 2 litres of mixture Q, then resultant mixture contains how much part of mixture C?
- A) 1/27
  - B) 4/19
  - C) 2/31
  - D) 2/19
  - E) 1/23

[View Answer](#)**Option A****Solution:**

C in 1<sup>st</sup> = 2/9, C in 2<sup>nd</sup> = 0

Total mixture = 4+2 = 6 l

So C in final mixture =  $(2/9)/6 = 1/27$