



## Mock Test Number: 011

1. In a class there are 60% girls and out of them 45% are poor. A student is selected at random; find the probability that the student is a poor girl.

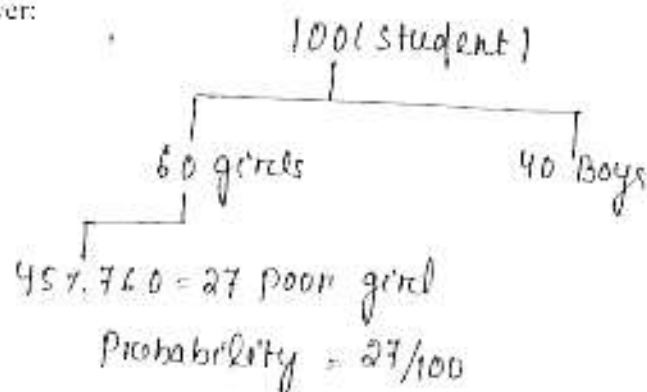
A.  $\frac{27}{100}$

B.  $\frac{28}{100}$

C.  $\frac{37}{100}$

D.  $\frac{25}{100}$

Answer:



2. The average of Tuesday Wednesday and Thursday is 37, where as the average of Wednesday Thursday and Friday is 38. If Friday is 39 find Tuesday

A. 36

B. 37

C. 38

D. 39

Answer:

$$T + W + Th = 37 \times 3 \quad \text{--- (1)}$$

$$W + Th + Fr = 38 \times 3 \quad \text{--- (2)}$$

$$Fr - T = (38 - 37) \times 3 \quad \text{(2) --- (1)}$$

$$\text{or } 39 - T = 3$$

$$\boxed{T = 36}$$

3. A man purchased cow and horse at RS 200000 and sold cow for 20% profit and horse at a loss, if overall gain is 4000 find the selling price of cow and horse

A. 2%

B. 5%

C. 3%

D. 9%

Answer:

Handwritten solution for Question 3:

Overall gain % =  $\frac{4000}{200000} \times 100 = 2\%$

Diagram showing profit and loss percentages:

20% (profit on cow)      x (loss on horse)

2% (overall gain)

2 - x% (net profit)      18 (loss on horse)

4. If  $A = \frac{2}{3}(B+C)$  and  $c = \frac{1}{2}(A+B)$  and  $A+B+C=3000$ , then find C.

A. 1000  
B. 1200

C. 1600  
D. 2000

Answer:

$$B = \frac{3}{2}A + C \quad \text{from } C = \frac{1}{2}(A+B)$$

$$2(A+B) + C = 3000$$

we get  $C = 1000$

$$A + B = 2000$$

5. In a city there are 60% congress voters and 40% bjp voters. If 75% of congress voters and 20% of BJP voters vote for candidate A, then find the total no of votes for candidate A.

A. 53%  
B. 98%

C. 65%  
D. 22%

Answer:

$$\text{Congress} \rightarrow 60\% \times \frac{3}{4} = 45\%$$

$$\text{BJP} \rightarrow 40\% \times \frac{1}{5} = 8\%$$

$$\text{Total} \quad \underline{\quad 53\% \quad}$$

6. If a publication occurs every seven years and the sum of the years is 13524. Then find the first year.

A. 2001  
B. 1975

C. 1911  
D. 1992

Answer:

$$a + S_n = \frac{n}{2} [2a + (n-1)d]$$

7. If three people can do a piece of work in 36 days. And first and second can do twice as the third. First and third can do thrice the second. Then find how many days will c take to do the work.

A. 250  
B. 450

C. 108  
D. 23

Answer:

Let the total work completed by A, B, C be a, b & c units per day.  
Also say there are 36 units of work which can be completed by A, B, C in 36 days, i.e. they completed 1 unit/day.

$$a + b = 2c$$

$$a + c = 2b$$

$$a + b + c =$$

$$\frac{a+b+c}{2c} = 1$$

$$\frac{2c}{3c} = 1 \Rightarrow c = \frac{1}{3} \text{ unit/day}$$

$$\text{So } C \text{ will take } \frac{36 \text{ units}}{\frac{1}{3} \text{ units/day}} = \boxed{108 \text{ days}}$$

8. There are 8 people F, G, H, J, K, L, M, N. 2 groups are to be formed. F will always go with J. G and M will never go together. H will always go with L. N will always go with G. find out the two groups.

A. FJGN & MHLK  
B. GNJF & LKHM

C. JFGN & HMKL  
D. None of these

Answer:

$$\begin{array}{cc} FJ & GN \\ HL & JM \end{array} \quad \left[ \begin{array}{cc} FJGN & MHLK \\ \text{or} & \\ GNHL & FJMK \end{array} \right]$$

9. In a clock the long hand is of 8cm and the short hand is of 7cm. if the clock runs for 4 days find out the total distance covered by both the hands.

A. 5174.72  
B. 2544.21

C. 3689.54  
D. None of these

Answer:

In one day M/H  $\rightarrow 24$  rounds ( $2\pi r$ )  
 $= 384\pi$

In one day M/H  $= 2$  rounds ( $2\pi r$ )

$= 28\pi$   
Total  $= 384\pi + 28\pi$  in one day

In 4 day  $= 1648\pi = 5174.72$

10. If A owes 50rs on a B. he decides to return the money in 10rs and 20rs note only on every alternate day starting on Monday. Find out the different ways in which he can return the money. (two ways are said to be different if different denominations of notes are given)

A. 4  
B. 6

C. 8  
D. 3

Answer:

$$50 = 10 \times 5 = 10a + 20b = 50$$

$$a + 2b = 5$$

$$b = 0 \quad a = 5$$

$$b = 1 \quad a = 3$$

$$b = 2 \quad a = 1$$

11. If  $m+n$  is divided by 12 then the remainder is 8. And if  $m-n$  is divided by 12 then the remainder is 6. Find out the remainder when  $mn$  is divided by 6.

A. 1

B. 2

C. 3

D. 4

Answer:

$$m + n = 12a + 8 \quad \text{--- A}$$

$$m - n = 12b + 6 \quad \text{--- B}$$

$$2n = 12(a+b) + 14 \quad \text{--- (1) = 4+13}$$

$$2n = 12(a-b) + 2 \quad \text{--- (2) = 1-13}$$

$$\Rightarrow m = 6(a+b) + 7$$

$$n = 6(a-b) + 1$$

$$\Rightarrow m \times n = 6(\text{factor of } 2b) + 7$$

when  $m \times n$  is divided by  $\text{Rank} = \text{Rem}(7/6) = 1$

12. If a can do a piece of work in 16 days and b can do in 24 days and A, B and C can do in 8 days then find out in how many days can C do the work. 48

A. 48

B. 49

C. 65

D. 25

Answer:

$$\text{LCM}(16, 24, 8) = 48 \text{ u/q's}$$

$$\text{so total days} = \frac{48}{1} = 48 \text{ days}$$

$$\hookrightarrow 3 + 2 + C = 6$$

$$\therefore C = 1 \text{ u/q}$$

$$A \rightarrow \frac{48}{16} = 3 \text{ u/d}$$

$$B \rightarrow \frac{48}{24} = 2 \text{ u/d}$$

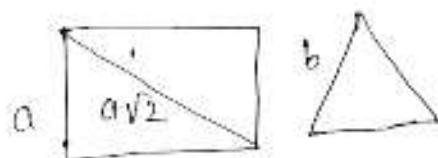
$$A+B+C \rightarrow \frac{48}{8} = 6 \text{ u/d}$$

13. If the diagonal of the square is equal to twice of side of an equilateral triangle. Find out the ratio of the area of the triangle to the square.

A.  $\sqrt{4}/6$ B.  $\sqrt{3}/8$ C.  $\sqrt{5}/6$ 

D. None of these

Answer:



$$a\sqrt{2} = 2b$$

$$a = \sqrt{2}b$$

$$\frac{\frac{\sqrt{3}}{4} b^2}{a^2} = \frac{\sqrt{3} b^2}{4 \times 2b^2}$$

$$\boxed{= \sqrt{3}/8}$$

14. A does a work in 10 days, B does in 15 & A + B will get Rs.5000 total. What will be the share of B in this?

A. 2000  
B. 1200

C. 1800  
D. 3655

Answer:

$$\begin{array}{l} A \rightarrow 10 \\ B \rightarrow 15 \end{array} \rightarrow \text{LCM: } 30$$

$$A's \text{ rate} = 3 \text{ units/day}$$

$$B's \text{ rate} = 2 \text{ units/day}$$

$$\Rightarrow A's \text{ total work: } B's \text{ total work} \\ = 3:2$$

$$\text{So, B's share} = \frac{2}{2+3} \times 5000 = \boxed{2000}$$

15. A man goes upstream for 10kms in 5 hrs. Another man goes downstream for 10kms in 3 hrs. If speed of stream is 15kms, what is the difference in speed of both men?

A. 25.33 km/hr

C. 32.10 km/hr

B. 28.66 km/hr

D. None Of These

Answer:

$$B_1 - S = 10/5 = 2 \text{ km/hr} \quad \text{--- (1)}$$

$$B_2 + S = 10/3 = 3.33 \text{ km/hr} \quad \text{--- (2)}$$

$$\text{(2)} - \text{(1)}$$

$$B_2 - B_1 + 2S = 1.33$$

$$\text{(or)} B_1 - B_2 = 3.33 - 1.33 = 2.00 \text{ km/hr}$$

16.  $1 \cdot 1! + 2 \cdot 2! + 3 \cdot 3! + \dots + 2012 \cdot 2012! = ?$

A.  $2013 - 1$

C.  $2012 - 1$

B.  $2012 - 1$

D. None of these

Answer:  $N = 1 \cdot 1! + 2 \cdot 2! + 3 \cdot 3! + \dots + 2012 \cdot 2012!$

$$N = 1 \cdot 1! + 2 \cdot 2! + 3 \cdot 3! + \dots + 2012 \cdot 2012! + 2013 \cdot 2012!$$

$$-N = (-1) \cdot 1! + (-2) \cdot 2! + (-3) \cdot 3! + \dots + (-2012) \cdot 2012! + (-2013) \cdot 2012!$$

$$0 = 1 \cdot 1! + 1 \cdot 2! + 2 \cdot 3! + \dots + 2012 \cdot 2012! + 2013 \cdot 2012! - 2013 \cdot 2012!$$

Rewriting  $\Rightarrow \boxed{2013 - 1} = 1 \cdot 1! + 2 \cdot 2! + 3 \cdot 3! + \dots + 2012 \cdot 2012!$

N by  $\rightarrow$  ans  
shifting it by 1 place.

17. 12 towns are divided into 4 groups of 3 each. If any two towns in same group are connected by 3 direct lines & in different groups by 1 direct line. Find the total number of direct lines?

A. 51

C. 53

B. 52

D. 54

Answer:

A D 67  
B E 14  
C F J

$[2 \times 3 \times 3 + 3 \times 3 \times 3] = 54$   
 No. of pairs in a group  $\downarrow$  No. of direct lines between cities of 3 groups  
 No. of groups  $\downarrow$  No. of direct lines between cities of 3 groups

18. 11 22 33 888

How ways we can arrange them so that odd positions are occupied by even positions.

A. 20

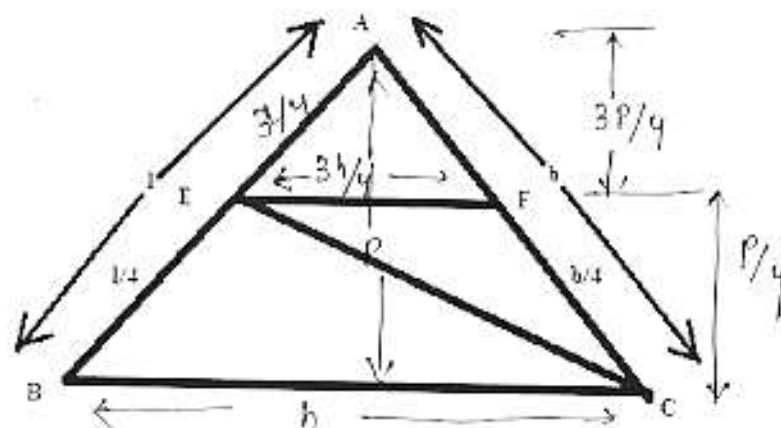
C. 60

B. 40

D. 90

Answer:  $\frac{15}{13 \times 2} + \frac{14}{12 \times 2} = 10 \times 6 = 60$   
 Arrangement of even no. in odd places + Arrangement of odd no. in even places

19.



Area = 40 unit.

Area (EFC) = ?

A. 6.5 sq unit

B. 7.5 sq unit

C. 9.5 sq unit

D. None of these

Answer:

$\Delta AEF$  is similar to  $\Delta ABC$

So, corresponding sides will have the same ratio.

$$\Rightarrow \frac{AB}{AE} = \frac{BC}{EF} \Rightarrow \frac{8}{3h/4} = \frac{h}{EF} \Rightarrow EF = \frac{3h}{4}$$

Similarly, height of  $\Delta AEF = 3p/4$  &  
height of  $\Delta EFC = p/4$

$$\text{Area} = 40 = \frac{1}{2} \times h \times p$$

$$\text{Area } \Delta CEF = \frac{1}{2} \times \text{base} \times \text{height} = \frac{1}{2} \times \frac{3h}{4} \times \frac{p}{4}$$

$$= \frac{3}{16} \left[ \frac{1}{2} \times h \times p \right] = \frac{3}{16} \times 40 = 7.5 \text{ sq. unit}$$

20. A bag has 1, 3, 5, 7, 9, 11 & 13 sticks. 3 are drawn. What is the probability they will form a triangle?

A. 13

C. 15

B. 14

D. 16

Answer:

Shortest side

$$9 | 11 | 13 \rightarrow 1$$

Total ways

$$= 13$$

a	b	c
1	3	— → 0 triangle
1	5, 7, 9	— → 0 "
3	5	7 → 1
3	7	9 → 1
3	9, 11	11, 13 → 2
3	13	5 → 0
5	7	9, 11 → 2
5	9	11, 13 → 2
7	11	13 → 1
7	13	— → 0

21. Find sum of prime numbers between x and y?

A. Find the prime number between the both x and y and add them

C. Add x and y then find the prime number

B. Find the prime number of x and add them

D. None of these

Answer:

22. Which of the following number must be added to 5678 to give a remainder of 35 when divided by 460?

A. 980

B. 797

C. 955

D. 618

Answer:

If we need of remainder 35, while dividing a number by 460. The unit place of that number must be 5.

$$\text{So } 5678 + 797 = 6475$$

23. George and Mark work for a company. George can finish a certain job in 30 Days Mark can finish the same job in 45 Days. A project was taken by company and George was made superior to mark. This move from the company was not liked by mark so mark did not work for 15 Days. Find the total number of days the entire work was completed if mark work at its normal speed after 15 days from the date of commencement

A. 15

B. 24

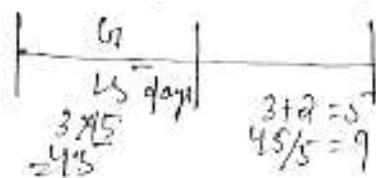
C. 35

D. 22

Answer:

George can finish a certain job in 30 days. Mark can finish the same job in 45 days.

$$\text{LCM of } (30, 45) = 90$$



$$\begin{array}{r} G \quad M \\ 30 \quad 45 \\ \downarrow \quad \downarrow \\ 3 \quad 5 \end{array}$$

$15 + 9 = 24$  days the entire work was completed.



24. George and mark can paint 720 boxes in 20 Days mark and harry in 24 Days. Harry and George in 15 Days. George works for 4 days, mark for 8 days and harry for 8 days. The total number of boxes painted by them is

A. 252

B. 516

C. 348

D. 492

Answer:

$$G+M = 720/20 = 36 \text{ Boxes/day} \quad \text{--- (1)}$$

$$\text{Similarly, } M+H = 720/24 = 30 \text{ Boxes/day} \quad \text{--- (2)}$$

$$H+G = 720/15 = 48 \text{ Boxes/day} \quad \text{--- (3)}$$

$$2(G+M+H) = 114 \text{ Boxes/day}$$

$$G+M+H = 57 \text{ Boxes/day}$$

$$G = 57 - 30 = 27 \text{ Boxes/day}$$

$$\begin{aligned} \text{Total Boxes painted} &= 4G + 8M + 8H = 4G + 8(M+H) \\ &= 4 \times 27 + 8 \times 30 = 108 + 240 = 348 \text{ Boxes} \end{aligned}$$

25. A merchant buys 20Kg of wheat at Rs 30 per kg and 40kg wheat at Rs 25 Per kg. he mixed them and sell the one third of the mixture at 26 per Kg. The price at which the merchant should sell the remaining mixture so that he may earn a profit of 25% on his whole outlay is

A. Rs 30

B. Rs 36

C. Rs 40

D. Rs 37

Answer:

$$\text{Total CP} = 20 \times 30 + 40 \times 25 = 1600$$

$$SP = 125\% \times 1600 = 2000 \text{ (25\% profit)}$$

$$SP \text{ for } 20\text{kg mix} = 26 \times 20 = 520$$

$$\begin{aligned} \text{Remaining total SP should be} \\ = 2000 - 520 = 1480 \end{aligned}$$

$$\boxed{\text{The SP for } 40\text{kg} = 1480/40 = 37}$$

26. Sum of series: 1-2+3-4+5-6.....200 terms

A. 100

B. 100

C. -200

D. 200

Answer: 1+3+5... 199 (100 terms)

-(2+4+6... 200) (100 terms)

$$\frac{100}{2} (1+199) = 10000$$

$$-\frac{100}{2} (2+200) = -10100$$

$$\text{Total: } -100$$

OR we can see

$$(1-2) = -1$$

$$(3-4) = -1$$

Hence are 100 pairs like this

$$\text{hence } \boxed{-100}$$

27. 12 kg rice at Rs 26/kg and 10 kg rice at Rs 28/kg.  $\frac{1}{3}$  sold at Rs. 32/kg. At what rate he should sell remaining to earn at profit of 25%?

A. 34.55kg

B. 34.45 kg

C. 34.35 kg

D. 34.25 kg

Answer:

$$\text{Total CP} = 12 \times 26 + 10 \times 28 = 592$$

$$\text{total quantity} = 22$$

$$\text{total SP} = (22 \times \frac{1}{3}) \times 32 + 22 \times \frac{2}{3} \times x = \frac{22}{3} [32 + 2x]$$

$$\text{This gives 25\% profit} \Rightarrow \text{So SP} = 592 (1 + \frac{25}{100}) = 740$$

$$\frac{22}{3} [32 + 2x] = 740 \Rightarrow x = 34.45 / \text{kg}$$

28.  $\frac{2}{3}$  balls are blue remaining are pink.  $\frac{7}{8}$  blue are defective.  $\frac{1}{4}$  of pink are defective. No of non defective is 152. Find no of defective.

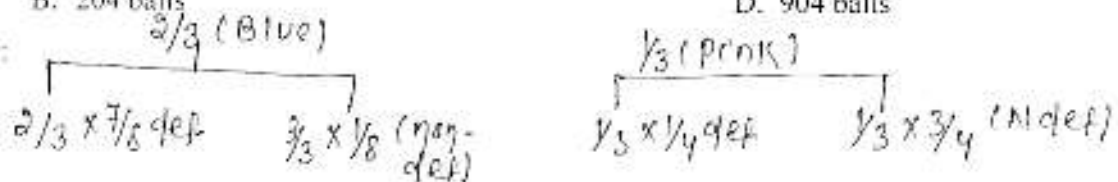
A. 304 balls

B. 204 balls

C. 504 balls

D. 904 balls

Answer:



$$\text{Total non-def} = \frac{2}{3} \times \frac{1}{8} + \frac{1}{3} \times \frac{3}{4} \Rightarrow \frac{1}{12} + \frac{1}{4} \Rightarrow \frac{1}{3}$$

$$\text{So, Non-defective} = \frac{1}{3} \text{ of total} = 152$$

$$\text{total ball} = 152 \times 3$$

$$\text{Defective ball} = \frac{2}{3} \text{ of total} = \frac{2}{3} \times 152 \times 3 = 304 \text{ balls}$$

29. Grand mother is twice the age of boy in 1994. Sum of grandmother's age and boy birth date is given. Find the boys age in 1999?

A.  $x/3 + 5$

B.  $x/3 + 6$

C.  $x/3 + 7$

D. none of these

Answer:

$$\text{Sum} = x, G + B = x$$

$$G = 2B$$

$$2B + B = x \Rightarrow 3B = x$$

$$B = x/3$$

$$\text{In 1999, boy's age} = \frac{x}{3} + 5$$

30. A's father will be twice as old as A in 5 years. His mother was twice of him 2 years back. Find sum of fathers and mothers age now?

A.  $2A + 3$

B.  $2A + 4$

C.  $2A + 5$

D. None of these

Answer:

$$F + 5 = 2(A + 5)$$

$$M - 2 = 2(A - 2)$$

$$F + M + 3 = 2(A + 3)$$

$$\Rightarrow \boxed{F + M = 2A + 3}$$

31. 24 random points. 7 are collinear. Any 3 points are not collinear. Find number of triangles formed?

A. 1205

B. 2035

C. 1037

D. 2253

Answer:

From 7 collinear points select any 2 i.e.  ${}^7C_2$   
This is the base of the triangle.  $\therefore$  there are  $(24 - 7)$   
= 17 choices for the apex of the  $\Delta$ .

So with collinear point  $\Delta = {}^7C_2 \times 17$

with non-collinear point  $\Delta = 17C_3$

$$17({}^7C_2) + 17C_3 = \boxed{1037}$$

32. G does  $\frac{2}{3}$  times M and  $\frac{1}{4}$  times H. % of G out of total work?

A.  $\frac{2}{3}$

B.  $\frac{6}{23}$

C.  $\frac{8}{29}$

D.  $\frac{5}{23}$

Answer:

$$\text{Total work} = G + M + H$$

$$G = \frac{2}{3}M \quad G = \frac{1}{4}H, \therefore \text{total work} \\ = G + \frac{3}{2}G + \frac{4}{3}G = \frac{13}{6}G$$

$$\text{Fraction of work done by G} = \frac{G}{\frac{13}{6}G} = \boxed{\frac{6}{13}}$$

33. 1 man loads 1 box in 9 mins. If 16 man work together, how many will load in 90 mins?

A. 120 boxes

C. 160 boxes

B. 140 boxes

D. 180 boxes

Answer:

1 man's  $\rightarrow$  9 min/Box

One man in 90 min will load 10 boxes

16 men in 90 min will load  $10 \times 16$

$= 160 \text{ Boxes.}$

34.  $X^2 + 2x + 2a = 0$ ;  $x^2 + 11x - a = 0$ ; find value of 'a' such that both have common roots?

A. -135

C. -180

B. -185

D. -186

Answer:

$$x^2 + 2x + 2a = 0$$

Let common ratio

$$y^2 + 11y + a = 0$$

$$x^2 + 2x + 2a = 0 \quad \text{--- (A)}$$

$$A - 2B$$

$$x^2 + 11x + a = 0 \quad \text{--- (B)}$$

$$x^2 + 20x + 0 = 0$$

$$x(x + 20) = 0$$

$$x = 0, x = -20$$

x can't be zero

$$\therefore x = -20$$

$$(-20)^2 + 11(-20) + a = 0$$

$$\Rightarrow a = -180$$

35. There are 720 boxes to be moved. G+M=x days; M+H=y days; H+G=z days. If G works 4 days, M for 8 and H for 8 days. How much work completed?

A. 440

C. 398

B. 472

D. 475

Answer:

$$G+M = 720/24 = 30 \text{ Boxes/day}$$

$$M+H = 720/30 = 24 \text{ Boxes/day}$$

$$H+G = 720/36 = 20 \text{ Boxes/day}$$

$$\text{Total work} = 30 \times 4 + 24 \times 8 + 20 \times 8 = 472$$

23//

George can finish a certain job in 30 days

1 day G complete  $\frac{1}{30}$  part of the work.

Mark can finish the same job in 45 days.

1 day M complete  $\frac{1}{45}$  part of the work.

15 days G works alone & complete  $15 \times \frac{1}{30} = \frac{1}{2}$  part of the work.

M & G together complete the work in

$$\frac{45 \times 30}{30 + 45} = 18 \text{ days.}$$

M & G will work together for remaining half part of the work i.e.  $\frac{1}{2} = 9$  days.

The total number of days the entire work was completed is  $\boxed{(15 + 9) = 24 \text{ days.}}$