Ratios - Solved Examples

Q 1 - On the off chance that a:b=2:3 and b:c=5:7, discover a:c.

A - 10:11

B - 10:21

C - 21:10

D - 11:10

Answer - B

Explanation

```
We have a/b = 2/3 and b/c = 5/7
So a/c = (a/b*b/c) = (2/3*5/7) = 10/21
So its demonstrate that a:c = 10:21
```

Q 2 - On the off chance that a:b=2:3 and b:c=5:7, discover a:b:c.

A - 10:15:21

B - 10:21:15

C - 15:10:21

D - 11:10:21

Answer - A

Explanation

```
Here a/b = 2/3 and b/c = 5:7 = 3/5*5:3/5*7 = 3:21/5.
So a:b=2:3 and b:c=3:21/5
So a:b:c = 2:3:21/5 = 10:15:21.
```

Q 3 - On the off chance that 4a = 5b and 8b = 9c, find a:b:c.

A - 45:36:32

B - 45:32:36

C - 32:45:36

D - 32:36:45

Answer - A

Explanation

```
4a = 5b
=> a/b=5/4
and 8b = 9c
=> b/c=9/8
So a:b = 5:4 and b:c = 9:8 = (4/9)(9):(4/9)(8) = 4:32/9
=> a:b:c = 5:4:32/9 = 45:36:32.
Hence,a:b:c = 45:36:32.
```

Q 4 - On the off chance that a/8 = b/9 = c/12, find a:b:c.

A - 8:12:9

B - 8:9:12

C - 12:8:12

D - 9:8:12

Answer - B

Explanation

```
Let a/8 = b/9 =c/12 =k.
Then a=8k ,b=9k and c=12k.
So a:b:c = 8k:9k:12k =8:9:12.
Hence,a:b:c = 8:9:12.
```

Q 5 - In the event that a:b =1:3, b:c = 5:7 and c:d = 9:8 ,find a:b:c:d.

A - 45:15:63:56

B - 63:45:15:56

C - 15:45:63:56

D - 15:63:45:56

Answer - C

Explanation

```
We have a:b = 1:3, b:c = 5:7 and c:d = 9:8
=> a:b = 5:15, b:c = 15:21, c:d =(21/9)*9 : (21/9)*8
=> a:b = 5:15, b:c = 15:21, c:d = 21:56/3
```

```
=> a:b:c:d =5:15:21:56/3 = 15:45:63:56
Consequently, a:b:c:d = 15:45:63:56
```

Q 6 - In the event that (5x+3y): (5x-3y) =3:1, then x:y=?

A - 6:5

B - 7:8

C - 8:9

D - 9:11

Answer - A

Explanation

```
Here (5x+3y)/(5x-3y) = 3/1
=> 5x+3y = 15x-9y
=> 10x = 12y
=> x/y = 12/10 = 6/5
So x:y =6:5
```

Q 7 - In the event that x:y= 5:3 ,then (8x-5y) : (8x+5y) = ?

A - 6:11

B - 7:11

C - 8:11

D - 5:11

Answer - D

Explanation

```
Given x/y = 5/3
Dividing numerator and denominator by y.
(8x-5y)/(8x+5y) = {8(x/y) - 5}/{8(x/y) + 5}
= {8*(5/3)-5}/{8*(5/3)+5}
= (40-15)/(40+15)
= 25/55
= 5/11
So (8x-5y):(8x+5y)= 5:11
```

Q 8 - locate the fourth corresponding to 4,5 and 12.

A - 18

B - 16

C - 14

D - 15

Answer - D

Explanation

```
Let 4:5::12:x.
=> 4*x = (5*12)
=> x = 5*12/4
= 15
So the fourth relative to 4,5,12 is 15.
```

Q 9 - locate the third proportinal corresponding to 9 and 12.

A - 18

B - 16

C - 14

D - 15

Answer - B

Explanation

```
Third relative to 9 and 12 is equivalent to fourth corresponding to 9,12 and 12.
Give it a chance to be x at that point
=> 9:12::12:x
=> 9x = 12*12
=> x = 12*12/9
=16
So the third relative is 16.
```

Q 10 - Locate the mean relative somewhere around 49 and 64.

A - 58

B - 56

C - 54

D - 55

Answer - B

Explanation

```
Mean relative somewhere around 49 and 64 is 49*64 = (7*8) = 56.
```

Q 11 - An aggregate of rs. 391 has been divided between a,b,c in the proportion 1/2 :2/3:3/4 , discover the offer of each.

A - 102,136,153

B - 112,114,123

C - 114,117,129

D - 122,134,123

Answer - A

Explanation

```
We have a:b:c=1/2:2/3:3/4= 6:8:9.
A share = (391*6/23) = 102 rs.
B offer = (391*8/23) = 136 rs.
C offer = (391*9/23) = 153 rs.
```

Q 12 - A sack contain one rupee, fifty paisa and 25 paisa in the proportion of 8:9:11, if the aggregate cash of the pack is 122, discover the no. of coins of every sorts.

A - 8,64,72,88

B - 16,32,72,88

C - 8,64,128,88

D - 32,64,128,88

Answer - A

Explanation

```
Let the quantity of one rupee, 50-p and 25-p coins be 8x, 9x and 11x individually.
At that point, 8x + 9x/2 + 11x/4 =122
=> 32x + 18x + 11x = 488
=> 61x =488
=> x = 8
No. of one rupee coins = 8*8= 64
No. of 50-p coins =9*8= 72
No. of 25-p coins =11*8 =88
```

Q 13 - A blend contains liquor and water in the proportion 4:3, if 7 liter of water is added to the blend, the proportion of liquor and water gets to be 3:4. Discover the amount of liquor in the blend.

A - 12 liters

B - 13 liters

C - 14 liters

D - 15 liters

Answer - B

Explanation

```
Let the amount of liquor and water be 4x liter and 3x liter separately.
At that point , 4x/3x + 7 = 3/4
=> 16x = 9x+21
=> 7x = 21
so estimation of x is 3
Amount of liquor in the blend is = 4*3 =12 liters.
```

Q 14 - In a collection, the no. of understudy considering expressions, trade and science in the proportion of 4:7:9. On the off chance that the no. of understudy in expressions of the human experience, business and science be expanded by 30%, 20% and 40%. What will be the new proportion?

A - 26:42:63

B - 36:42:63

C - 46:42:63

D - 56:42:63

Answer - A

Explanation

```
Let the no. of understudy in expressions, business and science be 4x,7x and 9x individually.
Presently they are 130% of 4x, 120 % of 7x and 140 % of 9x.
Required proportion = (130/100*4x): (120/100*7x) (140/100*9x)
=26x/5:42x/5:63x/5
=26:42:63.
```

Q 15 - The expense of assembling an auto is comprised of three items: cost of material, work and overheads. In a year, the expense of these things were in the proportion 4:3:2.Next year, the expense of material rose by 10%,cost of work expanded by 8% however the overheads lessened by 5%.Find the increment for every penny in the auto's cost.

A - 44/9 %

B - 54/9 %

C - 64/9 %

D - 74/9 %

Answer - A

Explanation

```
Let the expense of material, work and over head be rs. 4x, 3x and 2x separately.
At that point aggregate expense =9x rs .
New cost= {(110% of 4x) + (108% of 3x) +(90% of 2x)}
={(110/100*4x)+(108/100*3x)+(90/100*2x)}
= (22x/5 + 81x/25 + 9x/5)
= (110x+81x+45x)/25= 236x/25
Increment = {(236x/25)-9x} = 11x/25
Increase%= (11x/25)*(1/9x)*100 %
= 44/9 %
```

Q 16 - The proportion of no. of young men to that of the young ladies in a school is 3:2 .if 20% of young men and 25% of young ladies are grant holders, discover the % of the individuals who are not grant holders.

A - 64 %

B - 78 %

C - 84 %

D - 76 %

Answer - B

Explanation

```
Let the no. of young men be 3x and the no. of young ladies 2x.
Aggregate no. = 5x
No. of the individuals who are not grant holders
= (80% of 3x)+(75% of 2x)
= (80/100 * 3x) + ( 75/100 * 2x)
= (12x/5 + 3x/2)
= 39x/10
Required % = (39x/10)*(1/5x)*100 %
= 78%
```

Q 17 - An and B together have rs.1210 with them. In the event that 4/15 of A sum is equivalent to 2/5 of B sum, what amount of sum does B have?

A - 484

B - 284

C - 384

D - 584

Answer - A

Explanation

```
Let (4/15)a = (2/5)b = x
then a = 15x/4 and b = 5x/2
So. 15x/4 + 5x/2 =1210
=> 15x + 10x = 4840
=> 25x = 4840
=> x=193.6
So. B = (5/2*193.6) = 484
Henceforth B has Rs. 484.
```

Q 18 - In the event that (x+y): (x-y)= 4:1,then (x^2+y^2): (x^2-y^2)=?

A - 17/8

B - 19/8

C - 15/8

D - 13/8

Answer - A

Explanation

$(x + y)/(x - y)= 4/1$
$\Rightarrow x + y = 4x-4y$
$\Rightarrow 3x = 5y$
$\Rightarrow x/y = 5/3$
Now $(x^2+y^2)/ (x^2-y^2)= \{(x/y)^2+1\}/ \{ (x/y)^2-1 \}$
$= \{(5/3)^2+1\} / \{(5/2)^2 -1\}$
$= 34/16 = 17/8$

Q 19 - In the event that $(4x^2-3y^2) :(2x^2+5y^2)= 12:19$, then x:y=?

A - 2:1

B - 3:2

C - 4:1

D - 5:2

Answer - B

Explanation

$(4x^2 -3y^2)/ (2x^2 +5y^2) = 12/19$
$\Rightarrow 76x^2-57y^2 = 24x^2+60y^2$
$\Rightarrow 52x^2 = 117y^2$
$\Rightarrow x^2/y^2 = 117/52 = 9/4$
$\Rightarrow (x/y)^2=(3/2)^2$
$\Rightarrow x/y = 3/2.$
$\Rightarrow x:y = 3:2$

Q 20 - if $x^2+y^2 = 4xy$,then x:y = ?

A - 2:1

B - 3:2

C - 4:1

D - 5:2

Answer - A

Explanation

As $x^2+4y^2 = 4xy$
=> $x^2 + 4y^2 - 4xy = 0$
=> $(x-2y)^2 = 0$
=> x-2y=0
=> x = 2y
=> x/y = 2/1.
=> x:y = 2:1.