

# RATIOS - SOLVED EXAMPLES

## Advertisements

**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**

$4a = 5b$   
 $\Rightarrow a/b=5/4$   
and  $8b = 9c$   
 $\Rightarrow b/c=9/8$   
So  $a:b = 5:4$  and  $b:c = 9:8 = (4/9) (9) : (4/9) (8) = 4:32/9$

$\Rightarrow a:b:c = 5:4:32/9 = 45:36:32.$   
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  $c:d = 9:8$   
 $\Rightarrow a:b = 5:15$ ,  $b:c = 15:21$ ,  $c:d = (21/9)*9 : (21/9)*8$   
 $\Rightarrow a:b = 5:15$ ,  $b:c = 15:21$ ,  $c:d = 21:56/3$   
 $\Rightarrow a:b:c:d = 5:15:21:56/3 = 15:45:63:56$   
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  $(5x+3y)/(5x-3y) = 3/1$   
 $\Rightarrow 5x+3y = 15x-9y$   
 $\Rightarrow 10x = 12y$   
 $\Rightarrow x/y = 12/10 = 6/5$   
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  $4:5::12:x$ .  
 $\Rightarrow 4*x = (5*12)$   
 $\Rightarrow x = 5*12/4$   
 $= 15$   
So the fourth relative to 4,5,12 is 15.

**Q 9 - locate the third proportional 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  
 $\Rightarrow 9:12::12:x$   
 $\Rightarrow 9x = 12*12$

$$\Rightarrow x = 12 \times 12 / 9$$

$$= 16$$

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  $49 \times 64 = (7 \times 8) = 56$ .

**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 =  $(391 \times 6/23) = 102$  rs.

B offer =  $(391 \times 8/23) = 136$  rs.

C offer =  $(391 \times 9/23) = 153$  rs.

**Q 12 - A sack contain one rupee, fifty paise and 25 paise 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,  $8x + 9x/2 + 11x/4 = 122$

$$\Rightarrow 32x + 18x + 11x = 488$$

$$\Rightarrow 61x = 488$$

$$\Rightarrow x = 8$$

No. of one rupee coins =  $8 \times 8 = 64$

No. of 50-p coins =  $9 \times 8 = 72$   
No. of 25-p coins =  $11 \times 8 = 88$

**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 ,  $4x/3x + 7 = 3/4$   
 $\Rightarrow 16x = 9x + 21$   
 $\Rightarrow 7x = 21$   
so estimation of  $x$  is 3  
Amount of liquor in the blend is =  $4 \times 3 = 12$  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 =  $(130/100 \times 4x) : (120/100 \times 7x) : (140/100 \times 9x)$   
 $= 26x/5 : 42x/5 : 63x/5$   
 $= 26 : 42 : 63$ .

**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 =  $\{(110\% \text{ of } 4x) + (108\% \text{ of } 3x) + (90\% \text{ of } 2x)\}$   
 $= \{(110/100 \cdot 4x) + (108/100 \cdot 3x) + (90/100 \cdot 2x)\}$   
 $= (22x/5 + 81x/25 + 9x/5)$   
 $= (110x + 81x + 45x)/25 = 236x/25$   
Increment =  $\{(236x/25) - 9x\} = 11x/25$   
Increase% =  $(11x/25) \cdot (1/9x) \cdot 100\%$   
 $= 44/9\%$

**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  
 $= (80\% \text{ of } 3x) + (75\% \text{ of } 2x)$   
 $= (80/100 \cdot 3x) + (75/100 \cdot 2x)$   
 $= (12x/5 + 3x/2)$   
 $= 39x/10$   
Required % =  $(39x/10) \cdot (1/5x) \cdot 100\%$   
 $= 78\%$

**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.  $15x/4 + 5x/2 = 1210$   
 $\Rightarrow 15x + 10x = 4840$   
 $\Rightarrow 25x = 4840$   
 $\Rightarrow x = 193.6$   
So.  $B = (5/2 \cdot 193.6) = 484$   
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**

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

**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**

$$\begin{aligned}(4x^2 - 3y^2) / (2x^2 + 5y^2) &= 12/19 \\ \Rightarrow 76x^2 - 57y^2 &= 24x^2 + 60y^2 \\ \Rightarrow 52x^2 &= 117y^2 \\ \Rightarrow x^2/y^2 &= 117/52 = 9/4 \\ \Rightarrow (x/y)^2 &= (3/2)^2 \\ \Rightarrow x/y &= 3/2 \\ \Rightarrow x:y &= 3:2\end{aligned}$$

**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**

$$\begin{aligned} \text{As } x^2 + 4y^2 &= 4xy \\ \Rightarrow x^2 + 4y^2 - 4xy &= 0 \\ \Rightarrow (x-2y)^2 &= 0 \\ \Rightarrow x-2y &= 0 \\ \Rightarrow x &= 2y \\ \Rightarrow x/y &= 2/1. \\ \Rightarrow x:y &= 2:1. \end{aligned}$$

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