Ratio Proportion Variation-Exercise Questions updated on Dec 2024

1. If A : B = 4 : 7 and B : C = 5 : 9 then A : B : C is :

a) 20 : 35 : 63 b) 35 : 36 : 63 c) 30 : 35 : 65 d)25 :34: 68

2. If m : n = 3 : 4 and n : o = 8 : 9, then m : o is :

a) 1 :3 b) 3 :2 c) 2 : 3 d) 1 : 2

3. If 15% of A is the same as 20% of B, then A : B is :

a) 3 : 4 b) 4 : 3 c) 17 : 16 d) 16 : 17

4. Which of the following ratios is greatest?

a) 7 :15 b) 15 :23 c) 17 :25 d) 21 :29

5. The ratio of number of boys and girls in a class is 3 : 2. In the 1st semester exam 20% of boys and 25% of girls get more than or equal to 90% marks. What percentage of students get less than 90% marks?

a) 56 b) 70 c) 78 d) 80

6. A mixture of 85 kg contains milk and water in the ratio 27 : 7. How much more water is to be added to get a new mixture containing milk and water in the ratio 3:1?

a) 5 kg b)6.5 kg c) 7.5 kg d) 8 kg

7. The ages of Raju and Biju are in the ratio 3:1. Fifteen years hence, the ratio will be 2:1. Their present ages are:

a) 30yrs, 10yrs b) 45 yrs, 15yrs c)21 yrs, 7 yrs d) 60yrs, 20yrs

8. The speeds of three motor bikes are in the ratio 6 : 5 : 4. The ratio between the time taken by them to travel the same distance is :

a) 10 : 12 : 15 b) 12 : 10 : 8 c) 15 : 12: 10 d) 10 : 15 : 12

9. In a company 10% of male staff are same in number as 1/4th of the female staff. What is the ratio of male staff to female staff

a) 3 : 2 b) 5 : 2 c) 2 : 1 d) 4 : 3

10. The telephone bill of a certain establishment is party fixed and partly varies as the number of calls consumed. When in a certain month 540 calls made the bill is Rs.1800. In another month 620 calls are consumed then the bill becomes Rs.2040. In another month 500 units are consumed due to more holidays. The bill for that month would be :

a) Rs.1560 b) Rs.1680 c) 1840 d) Rs.1950

11. If 0.4 of a number is equal to 0.06 of another number, the ratio of the numbers is :

a) 2 :3 b) 3 :4 c)3:20 d) 20 : 3

12. The ratio of incomes of two person P1 and P2 is 5 : 4 and the ratio of their expenditures is 3 : 2. If at the end of the year, each saves Rs.1600, then what is the income of P1?

a) Rs.800 b) Rs.2400 c) Rs.4000 d) 3200

13. The mean proportional between 234 and 104 is :

a) 12 b) 39 c) 54 d) None of these

14. The seats in an Engineering college for Computer science, electronics and civil are in the ratio of 5 : 7 :8. There is a proportion to increase these seats by 40%, 50% and 75% respectively. What will be the ratio of increased seats ?

a) 2 : 3 : 4 b) 6 : 7 : 8 c) 6 : 8 : 9 d) none of these

15. If 96 is divided into four parts proportional to 5, 7, 4, 8 then the smallest part is :

a) 16 b)14 c)20 d) 18

16. The Price of 357 apples is Rs.2499. What will be the price of 49 dozens of such apples?

a) Rs.3800 b) Rs.2816 c)Rs.4116 d) Rs.3116

17. Some ladies can do a piece of work in 12 days. Two times the number of such ladies will do half of that work in :

a) 6 days b) 4 days c)12 days d) 3 days

18. A piece of work can finish by a certain number of men in 100 days. If however, there were 10 men less, it would take 10 days more for the work to be finished. How many men were there originally?

a)75 b)82 c)100 d)110

19. It takes 10 days for digging a trench of 100 m long, 50 m broad and 10 m deep. What length of trench, 25 m broad and 15 m deep can be dug in 30 days ?

a) 400 m b) 200 m c) 100 m d) 89m

20. A wheel rotates 10 times every minute and moves 20 cm during each rotation. How many metres does the wheel move in one hour?

a) 6 metre b)12 metre c) 120 metre d) 1200 metre

Answer & Explanations

1. Expl : A : B = 4 : 7

   B : C = 5 :9 = 5*7/5 : 9 *7/5 = 7 : 63/5

   A : B : C = 4 : 7 : 63/5 = 20 : 35 : 63

2. Expl : m/n = m/n * n/o =3/4 * 8/9 = 2/3. So m : o = 2 : 3

3. Expl : 15% of A I= 20 % of B =15A/100 = 20B/100 = 4/3 = 4:3

4. Expl : 7/15 = 0.466, 15/23 = 0.652, 17/25 = 0.68 21/29 = 0.724

   Clearly, 0.724 is greatest and therefore, 21 : 29 is greatest

5. Expl : Let boys =3x and girls =2x.

   Number of those who get less than 90% mark =(80% of 3x) + (75% of 2x)

   =(80/100)*3x +(75/100 *2x) =39x/10

   Required percentage = (39x/10 *1/5x *100)% = 78%.

6. Expl : Milk in 85 kg of mix = 85* (27/34) = 135/2 kg.

   Water in it = 85-135/2 = 35/2 kg.

   Let x kg of water be added to it.

   Then, (135/2)/(35/2 + x) = 3/1; 135/(35 +2x) = 3/1;

   105 + 6x = 135 ; 6x = 30; x = 5

   The quantity of water to be added = 5 kg

7. Expl : Let the ages of raju and Biju is 3x and x years respectively.

   Then, (3x +15)/ (x+15) = 2/1; -> 2x + 30 = 3x + 15 -> x = 15

   So Raju's age = 3*15 = 45 and Biju's age = 15 years

8. Expl : Ratio of time taken : 1/6 :1/5 : 1/4 = 10 : 12 : 15

9. Expl : 10% of MS = 1/4th of FS -> 10MS/100 = 1/4FS -> MS = 5/2 FS

:. MS/FS = 5/2 = MS : FS = 5 : 2

10. Expl : Let the fixed amount be Rs. X and the cost of each unit be Rs. Y.

Then, 540y + x = 1800 …. And 620y + x = 2040

On subtracting (i) from (ii),we get 80y = 240 -> y = 3

Putting y = 3 in (i) we get :

540 * 3 + x = 1800 x = (1800-1620) = 180

. : Fixed charges = Rs.180, Charge per unit = Rs.3.

Total charges for consuming 500 units = 180 +(500*3) = Rs.1680

11. Expl : 0.4A = 0.06B -> A/B = 0.06/0.40 = 6/40 = 3/20

:. A : B = 3 : 20

12. Expl : Let the income of P1 and P2 be Rs. 5x and Rs.4x respectively and let their expenditures be Rs.3y and 2y respectively.

Then, 5x – 3y = 1600 …(i) and 4x – 2y = 1600 ……..(ii)

On multiplying (i) by 2, (ii) by 3 and subtracting, we get : 2x = 1600 -> x = 800

P1's income = Rs 5*800 = Rs.4000

13. Expl : Required mean proportion is = 234 104 = (13*9*2*13*18) = (13*3*4) = 156

14. Expl : Originally, let the number of seats for Computer science, electronics and civil are 5x : 7x : 8x respectively.

Number of increased seats are (140% of 5x),(150% of 7x) and (175% of 8x)

7x : 21x/2 : 14x = 14x : 21x : 28x = 2 : 3 : 4.

15. Expl : Given ratio = 5 : 7 : 4 : 8 , sum of ratio = 24

:. The smallest part = (96 *4/24) = 16

16. Expl : More apples, more cost(Direct)

357 *588 : : 2499 : x

x = (588*2499)/357 = 4116

17. Expl : Let x ladies can do the work in 12 days. More ladies, less days (Indirect)

Less work, less days (direct)

Ladies 2x : x Work 1 : ½

2x : x , 1 : ½ : : 12 : y

:. 2x * 1*y = x* ½ *12 or y = 3

Hence the required number of days = 3

18. Expl: Originally let there be x men.

Less men, more days (Indirect)

:. (x-10): x : : 100 :110 or x-10/x = 100/110

or 11x-110 = 10x or x =110

So, originally there were 110 men.

19. Expl : More days, more length (Direct)

Less breadth, more length (Indirect)

More depth, less length (Indirect

Days 10 : 30;

Breadth 25 : 50; : : 100 : x

Depth 15 : 10;

:. 10 * 25* 15 * x = 30 *50 * 10 *100

x= (30*50*10*100)/10*25*15 = 400

So the required length = 400m

20. Expl : Number of times wheel moves in 1 hour = 10 * 60 = 600

:. Distance moves = (600 *20) cms = 12000 cms

In metres = 120 metre