

Ratio and Proportion Questions Railway Exams

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Ratio and Proportion Railway Group-D Exams

1) If $a : b = 3 : 2$, $b : c = 6 : 5$ and $c : d = 2 : 9$ find the ratio of $a : d$?

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

2) The sum of two number's A and B is 30. If A is 5 more than B .Find the ratio of A and B?

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

3) Two numbers are in ratio 3 : 7. If both being the multiple of 5 and 3 then find the numbers respectively?

- a) 45 and 105
- b) 105 and 45
- c) 123 and 111
- d) Can't be determined

4) The two number's are in ratio of 7:9. If both the numbers are increased and decreased by 20% respectively then find the ratio of new numbers?

- a) 6 : 7
- b) 7 : 6
- c) 5 : 7
- d) 3 : 4

5) A number when divided into two parts in the ratio of 12 : 17. Due to which the greatest number becomes 15 more than the smaller. Find the original number?

- a) 87
- b) 96
- c) 88s
- d) 97

6) If $A : B = 2 : 3$, $B : C = 9 : 8$, $C : D = 2 : 5$. If the difference between A and D is 7 then find the sum of A and D?

- a) 39
- b) 26
- c) 52
- d) 48

7) If A is 50% of B. B is 100% more than C and C is 75% of D then what is the ratio of A and D?

- a) 3 : 4

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b) 4 : 3

c) 5 : 2

d) 5 : 7

8) Three numbers are in the ratio of 2 : 5 : 7. If the average of first and third number is 27 then find the ratio of sum to the product of numbers?

a) 1 : 180

b) 180 : 1

c) 27 : 92

d) 95 : 112

9) What is the third proportion of 10 and 30?

a) 90

b) 45

c) 25

d) 35

10) Two numbers say a and b are in the ratio of 5 : 4. If a is first increased by 25% then decreased by 20% while b is first decreased by 25% and increased by 20% then find the new ratio?

a) 5 : 4

b) 4 : 5

c) 1 : 3

d) 2 : 3

11) The age of A and B is in the ratio 5:6. Before 38 years ratio was 6:11. Find the present age of A?

a) 50 years

b) 45 years

c) 47 years

d) 78 years

12) A is thrice of B who is twice of C. If the difference of A and C is 20 years then find the age of B after 7 years?

a) 15 years

b) 20 years

c) 10 years

d) 12 years

13) In a beaker, Solution A consists of water and wine in the ratio of 3 : 8. On adding 8 litres of wine it becomes 5 : 16?

a) 40 litres

b) 35 litres

c) 45 litres

d) 30 litres

14) Container A has 25% water in it and remaining is sanitizer. On adding 16 Litre of water ratio gets reversed. Find the initial Quantity of Solution?

a) 8 litres

b) 10 litres

c) 6 litres

d) 12 litres

15) The ratio of radius of circle to the side of square is 7 : 5. The circumference of circle is 308 cm. Find the perimeter of square?

a) 140 cm

b) 70 cm

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c) 280 cm

d) 150 cm

16) Two circle say C_1 and C_2 with radius in the ratio of 4 : 3. If the perimeter of the bigger circle is 176cm then find the perimeter of smaller circle?

a) 132cm

b) 156cm

c) 121cm

d) 120 cm

17) The weight of the two person A and B is in the ratio 5 : 8. The average of their weight is 39 kg. Find the difference of their weight?

a) 18 kg

b) 24 kg

c) 12 kg

d) 16 kg

18) In a school, the ratio of girls and boys is 4:5. When 100 boys leave the school, the ratio becomes 6:7. How many girls are there in the school?

a) 1200

b) 1500

c) 1800

d) 1600

19) A fraction bears the same ratio to $1/3$ as $8/7$ does to $8/11$. What is the fraction?

a) $11/21$

b) $21/11$

c) $11/3$

d) $3/11$

20) If $A : B : C = 9 : 8 : 6$. Find the value of $(1/A) : (1/B) : (1/C)$?

a) 9 : 8 : 12

b) 8 : 9 : 12

c) 9 : 8 : 7

d) 8 : 7 : 9

21) If $(A + B) : (B + C) : (C + A) = 8 : 7 : 6$. Find $A:B:C$?

a) 4 : 4 : 3

b) 3 : 4 : 4

c) 4 : 3 : 4

d) 1 : 2 : 4

22) If 'X' is subtracted from each of the numbers 22, 46, 18 and 34 then they will be in proportion find value of 'X'?

a) 10

b) 8

c) 15

d) 17

23] LNCT, Bhopal is having seats of civil, mechanical and electrical branch in the ratio of 3 : 4 : 7. If there is an increment of 30%, 40%, 50% respectively in it then find the new ratio of seats?

a) 52 : 42 : 105

b) 105 : 42 : 52

c) 40 : 30 : 70

d) 20 : 30 : 50

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24) There are two numbers a and b. If 40% of $\frac{3}{8}$ of a is equal to 62.5% of $\frac{3}{11}$ of b is equal then find the ratio between a and b?

- a) 25 : 22
- b) 22 : 25
- c) 100 : 23
- d) 24 : 25

25) In a city the ratio of male to female is in the ratio of 5 : 8. 40% of the city females are employed and 60% of the city people are male. Find Ratio of unemployed male to female?

- a) 5 : 12
- b) 12 : 5
- c) 5 : 13
- d) 6 : 17

26) A is 8 more than B who is 16 more than C and ratio of A : C = 4 : 1. Find the value of A + B + C?

- a) 64
- b) 32
- c) 128
- d) 57

27) If a number 'X' is added to 42, 140, 50 and 164 they will be in proportion then find the value of X?

- a) 7
- b) 1
- c) 3
- d) 4

28) If a building having 'N' number of flats, ratio of broadband users to non broad band users is 10 : 7. If the ratio of AIRTEL to BSNL user is in the ratio of 7 : 3. If the difference between non-user to BSNL is 100 then find the value of 'N'?

- a) 425
- b) 400
- c) 500
- d) 900

29) Marks scored by Sumit in Maths, Science, English is in the ratio of 9 : 8 : 7. If the average marks is 80 then find the marks scored in maths?

- a) 90
- b) 70
- c) 80
- d) 60

30) Find the ratio of mean proportion of 81 & 64 to the third proportion of 20 & 30?

- a) 8 : 5
- b) 5 : 8
- c) 5 : 6
- d) 4 : 7

31) Indian Army has tank to missile is in the ratio of 5 : 6. If due to some terrorist activity 40 tanks were destroyed and 32 missile were launched such that the new ratio becomes 3:4 then find the number of initial tanks ?

- a) 160
- b) 320

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c) 140

d) 170

32) In a notification of SSC stated vacancy in the ratio of 18 : 5 which means on every 18 vacancy there is 5 vacancy reserved for ex-service men. If the number of application by ex-service men was 5000 and 4350 were rejected till final round then find the total vacancy?

a) 2340

b) 2400

c) 2380

d) 2540

33) $(A + C) : (B + C) : C = 7 : 9 : 5$. Find the value of $C - A$ if A is greater than B by value 8?

a) 12

b) 21

c) 8

d) 6

34) An article with $MP : CP = 9 : 5$ and also profit = 26%. Given is the MP is 540 more than SP. Find the CP?

a) 1000

b) 800

c) 900

d) 1200

35) The Speed of boat to the stream is in ratio of 8 : 1. If boat speed is increased by 25% then it will cover downstream distance in 10 hours. (Distance of 220 kms). Find the Actual speed of boat

a) 16 kmph

b) 20 kmph

c) 12 kmph

d) 18 kmph

36) A village has population of 'P' in which voter to non-voter ratio is 8 : 9. In which male voters to female voters ratio is 2 : 3. If the difference of non - voters to female voters is 1800 then find the total population 'P'?

a) 5100

b) 2700

c) 6800

d) 5900

37) A sum of money is divided among A,B,C in such a way that 5 times A's share, 3 times of B's share and 2 times C's share are equal. The ratio between the share of A,B,C is.

a) 5:3:2

b) 2:3:5

c) 6:10:15

d) 15:10:6

38) A bag contains some eggs in it. After 10 minutes he buys some mangoes and now the ratio of egg to mangoes becomes 4 : 7 after some time he buys a dozen of orange and now the ratio becomes 8 : 11 : 6. Find the number of eggs in the bag?

a) 16

b) 20

c) 12

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d) 19

39) A container has 37.5% of water in it and rest is pure milk. If Anil puts 20 litre of pure milk in it then water will be 25% in it then find the initial quantity of water?

a) 15 litres

b) 9 litres

c) 10 litres

d) 12 litres

40) Two number's say A and B are in the ratio 3:8. If A is 24 then find the value of B?

a) 64

b) 36

c) 81

d) 58

41) Income of A and B is in the ratio 4: 3 and that of saving is 3 : 2. If the expenditure of A is 2500 then find the income of B?

a) 7500

b) 5000

c) 10000

d) 1200

42) If $(A + B) : (A - B) = 7 : 5$ then find the ratio of $2A : 3B$?

a) 4 : 1

b) 1 : 4

c) 3 : 4

d) 3 : 5

43) Two person A and B entered into partnership with the initial investment of 8 : 9 and that of time being is 8 : 5. If the profit of A is 16000. Find the initial investment of B?

a) 11250

b) 12250

c) 12500

d) 13500

44) The prices of a Mobile and a refrigerator are in the ratio of 6:7. If a refrigerator costs 3000 more than a Mobile, then find out the price of Mobile

a) 18000

b) 21000

c) 24000

d) 20000

45) If $(a/d) = (b/e) = (c/f) = 5 : 1$ then find $(a + b + c) : (d + e + f) = ??$

a) 15 : 1

b) 1 : 15

c) 5 : 1

d) 5: 8

46) What value must be decreased from 6 : 7 to obtain 7 : 6?

a) 13

b) 10

c) 2

d) 9

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47) The price of a petrol is decreased by 6.66% due to which sale was increased by 10%. If initial price was 64/- then find the new revenue?

- a) 660
- b) 640
- c) 650
- d) 655

48) If the ratio of income of P and Q is 3 : 1. The ratio of their expenditure is in ratio of 8 : 3 and the ratio of their saving is 4:1. The sum of their saving is 5000. Find the income of P?

- a) 12000
- b) 9000
- c) 15000
- d) 16000

49) A : B : C = 3 : 4 : 2. If C is increased by 50% while B is decreased by the same due to which C becomes 120. Find the value of A?

- a) 90
- b) 120
- c) 150
- d) 170

50) The ratio of a article's cost price and selling is 8 : 9. The CP of the article is increased by 50 rupees and that of SP is increased by 200 rupees the ratio becomes 11 : 13. Find the increased SP of the article?

- a) 2990
- b) 2790
- c) 2870
- d) 2345

ANSWERS

1) Answer: A

Solution:

$$a : b = 3 : 2 \dots\dots\dots(1)$$

$$b : c = 6 : 5 \dots\dots\dots(2)$$

$$c : d = 2 : 9 \dots\dots\dots(3)$$

From above equations we will find a : d,

$$a:b:c:d= 36 : 24 : 20 : 90$$

$$a : d = 36 : 90$$

$$a : d = 2 : 5$$

2) Answer: A

Solution:

Given, sum of two numbers A and B is 30

$$A + B = 30 \dots\dots\dots(1)$$

$$A - B = 6 \dots\dots\dots(2)$$

On solving both the equations we get,

$$A = 18$$

$$B = 12$$

3) Answer: A

Solution:

Let the two numbers be A and B in the ratio 3 : 7

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If both the numbers are multiple of 3 and 5 then it must be a multiple of 15.

Hence we can say that A and b will be 45 and 105.

4) Answer: B

Solution:

Let the given numbers be A and B in the ratio of 70 and 90

It is given that both the numbers are increased by 20% and then decreased by 20% respectively.

New value of A = 120% of 70

New value of B = 80% of 90

A : B = 120% of 70 : 80% of 90

A : B = 7 : 6

5) Answer: A

Solution:

Let the number be x. If this number is further break in the ratio of 12 : 17 then the bigger number say 17 units will be 15 values greater than 12 units.

5 units = 15 value

1 unit = 3 value

Since the number is breaking into 12 and 17 unit so the sum will be 29 units which is equal to x.

So the number will be $29 \times 3 = 87$

Alternative method

$17x - 12x = 15$

$x = 3$

$12x + 17x = 12 \times 3 + 17 \times 3 = 87$

6) Answer: A

Solution:

A : B = 2 : 3.....(1)

B : C = 9 : 8.....(2)

C : D = 2 : 5.....(3)

A : D = 36 : 120

A : D = 3 : 10

Difference between A and D is 7 units which is equals to 21 value. So 1 unit = 3 value

Sum of A and D is 13 units. So by multiplying $13 \times 3 = 39$

Alternative method

Difference between A and D is 7

$10x - 3x = 21$

$7x = 21$

$x = 3$

Sum of A and D is

$10x + 3x = 13x = 39$

7) Answer: A

Solution:

A : B = 1 : 2.....(1)

B : C = 2 : 1.....(2)

C : D = 3 : 4.....(3)

From above equations we can find A : D = 3 : 4

8) Answer: A

Solution:

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Let the number be $2x$, $5x$ and $7x$.

So the sum of first and last number will be $9x$ and the average of these numbers will be 27.

Hence,

$$9x = 54$$

$$x = 6$$

The ratio of sum to the product of numbers will be,

$$= 14 * 6 : 70 * 6 * 6 * 6$$

$$= 1 : 180$$

9) Answer: A

Solution:

Third proportion can be calculated as,

$$10:30:: 30:x$$

$$X=30*30/10$$

$$X = 90$$

10) Answer: A

Solution:

Let the numbers be 50 and 40.

Applying procedure on first term a,

Using successive formula;

$$a + b + a*b/100 \dots \dots \dots (1)$$

$$+25\% + -20\% + (25)*(-20)/100$$

$$\text{Net change} = 0$$

Applying procedure on first term b,

$$-25\% + 20\% + (+25)*(20)/100$$

$$\text{Net change} = 0$$

So the ratio will be remained unchanged.

11) Answer: A

Solution:

Age of A and B is in ratio $5 : 6 \dots \dots \dots (1)$

Age of A and B before 38 years will be $6 : 11 \dots \dots \dots (2)$

As we know that the difference between their ages will be same.

Difference in eq (1) is 1 and eq (2) is 5 so we will multiply by 5 in eq (1) and we will get

$$A : B = 25 : 30$$

Before 38 years,

$$A : B = 6 : 11$$

So difference will be 19 unit = 38 years

$$1 \text{ unit} = 2 \text{ years}$$

Present age of A = $25 * 2 = 50$ years.

12) Answer: A

Solution:

Deducing the first statement we get,

$$A : B = 3 : 1$$

$$B : C = 2 : 1$$

Balancing the ratio we get,

$$A : B : C = 6 : 2 : 1$$

Here the difference is 5 units which is equal to 20 years.

So 1 unit = 4 years

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Present age of B is 8 years and age of B After 7 years will be 15 years.

13) Answer: A

Solution:

Ratio of water and wine is in ratio 3 : 8

After adding 8 litres of wine it becomes 5 : 16

We can see that we have only added wine so the concentration of water must be same in both the equations.

Balancing both the equations by multiplying 3 and 5 to make it 15.

Ratio of water and wine is in ratio 15 : 40

After adding 8 litres of wine it becomes 15 : 48

So 8 units will be equals to 8 litre

1 unit = 1 litre

Initial wine = 40 litre

Alternative Method

Ratio of water and wine is in ratio 3 : 8

After adding 8 litres of wine it becomes 5 : 16

$$3x/8X+8=5/16$$

$$48x=40x+40$$

$$X=5$$

Initial wine = 8X = 40 litre

14) Answer A

Solution:

Initial ratio of mixture

25% : 75%

$$1 : 3 \text{ (water : sanitizer)eq (1)}$$

$$\text{Final ratio of mixture } 3 : 1 \text{ (water : sanitizer)eq (2)}$$

Since only 16 litre of water is added so that sanitizer should be balanced.

So multiply equation (2) by 3 we get,

$$1 : 3 \text{eq (1)}$$

$$9 : 3 \text{eq (2)}$$

$$8 \text{ units} = 16 \text{ litres}$$

$$1 \text{ unit} = 2 \text{ litres}$$

$$\text{So initial quantity was } 4 \text{ unit} * 2 = 8 \text{ litres}$$

Alternative Method

Initial ratio of mixture

25% : 75%

$$1 : 3 \text{ (water : sanitizer)eq (1)}$$

$$\text{Final ratio of mixture } 3 : 1 \text{ (water : sanitizer)eq (2)}$$

$$x/3x+16=3/1$$

$$x=2$$

$$\text{So initial quantity} = 4x = 8 \text{ litres}$$

15) Answer A

Solution:

Ratio of radius of circle to the side of square is 7 : 5

$$\text{Circumference} = 308 = 2\pi r$$

$$\text{Radius}(r) = 49 \text{ cm}$$

So side of square will becomes 35 cm

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Perimeter of square = $4 \times \text{side} = 140 \text{ cm}$

16) Answer: A

Solution:

Two circle say C_1 and C_2 with radius in the ratio of $4 : 3$

Perimeter of the bigger circle is $176\text{cms} = 2\pi r \dots \text{Eq (1)}$

On solving above we get $r_1 = 28$

On comparing with the ratio's we get radius of smaller circle = 21cm

So perimeter of smaller circle = 132 cm

17) Answer: A

Solution:

Weight of the two person's A and B is in the ratio $5 : 8$

The average of their weight is 39 i.e $(A + B) = 78 \text{ kg}$

Sum of their weight is $13 \text{ units} = 78 \text{ kg}$

$1 \text{ unit} = 6\text{kg}$

Difference of their weight in units = 3 units

$3 \text{ units} \times 6 \text{ kg} = 18 \text{ kg}$

Alternative Method

$5x + 8x/2 = 39$

$13x = 78$

$x = 6$

Difference of their weight = $8x - 5x = 3x = 18 \text{ kg}$

18) Answer: A

Solution:

Let number of girls = $4x$

Number of boys = $5x$

$4x/5x - 100 = 6/7$

$2x = 600$

$x = 300$

Number of girls = $4x = 1200$

19) Answer: A

Solution:

According to the question

$x : 1/3 = 8/7 : 8/11$

$x = 11/21$

20) Answer: B

Solution:

If $A : B : C = 9 : 8 : 6$

Taking LCM of them we get 72

Now dividing 72 by unit's of A, B, C we can get our respected ratios.

Value of $(1/A) : (1/B) : (1/C) = 8 : 9 : 12$

21) Answer: A

Solution:

$(A + B) : (B + C) : (C + A) = 8 : 7 : 7 \dots\dots\dots(1)$

Let $A + B = 8 \text{ units} \dots\dots\dots(2)$

$B + C = 7 \text{ units} \dots\dots\dots(3)$

$C + A = 7 \text{ units} \dots\dots\dots(4)$

$(A + B) + (B + C) + (C + A) = 22 \text{ units}$

$2(A + B + C) = 22 \text{ units}$

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$$A + B + C = 11$$

$$A + 7 = 11 \Rightarrow A = 4;$$

$$B + 7 = 11 \Rightarrow B = 4$$

$$C + A + B = 11$$

$$C + 8 = 11 \Rightarrow C = 3$$

Taking ratios of $A : B : C = 4 : 4 : 3$

22) Answer: A

Solution:

This type of questions must always be approached with option,

It is clear that 15 can never be because it will be reduced the first term very much.

Let's take $X = 10$ and subtract from each term

We will get,

$$12 : 36 :: 8 : 24$$

$$1 : 3 :: 1 : 3$$

23) Answer: A

Solution:

Ratio of seats as given respectively $4 : 3 : 7$

Let's take the values are 40, 30 and 70 respectively

Now there is an increment in it is 30%, 40% and 50% respectively.

So we get

New ratio will be $52 : 42 : 105$

24) Answer: A

Solution:

Let the two numbers be a and b .

Now according to the given condition,

$$(40/100) * (3/8) * a = (5/8) * (3/11) * b$$

$$a : b = 25 : 22$$

25) Answer: A

Solution:

Ratio of Male to female = $5 : 8$

Let take the value of male and female = 50 and 80

Total female = 80

40% of female are employed

$$\text{Employed female} = 80 * (40/100) = 32$$

$$\text{Unemployed female} = 80 - 32 = 48$$

Total Male = 50

$$\text{Unemployed male} = 50 * (40/100) = 20$$

$$\text{Employed Male} = 50 - 20 = 30$$

Ratio of unemployed male to female = $20 : 48$

$$\Rightarrow 5 : 12$$

26) Answer: A

Solution:

A is 8 more than B means $A - B = 8$(1)

B who is 16 more than C means $B - C = 16$(2)

Adding both the equations we get

$$A - C = 24$$
.....(3)

Ratio of $A : C = 4 : 1$(4)

So the difference in units will be 3 units = 24 value

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So 1 unit = 8 value.

So $A = 32$, $B = 24$ and $C = 8$

$A + B + C = 64$

27) Answer: A

Solution:

This type of questions must always be approached with option, It is clear that 1 can never be the answer because it will be reduced the first term very much.

$42 : 140 :: 50 : 164$

Let's take $X = 7$ and add from each term we will get,

$49 : 147 :: 57 : 171$

$1 : 3 :: 1 : 3$

28) Answer: A

Solution:

Total numbers of flats in a building = N

Ratio of broadband users to non users is $10 : 7$

N	
Broadband	Non broadband users
10	7
AIRTEL	BSNL
7	3

The difference between non broadband users to BSNL is 100

In term of units it is 4 units.

So this 4 units will be equal to 100

1 unit = 25 value

Total population = 17 units

Total population = $17 * 25 = 425$

29) Answer: A

Solution:

Marks in Maths, Science, English is in the ratio of $9 : 8 : 7$

Maths = $9x$; Science = $8x$; English = $7x$

Average = 80

So sum will be $80 * 3 = 240$

Total = $9x + 8x + 7x = 24x$

$24x = 240$

$x = 10$

Marks in maths = $9 * 10 = 90$

30) Answer: A

Solution:

Mean proportion of 81 & 64 = $\sqrt{81*64} = 72$

Third proportion = $a / b = b / c$

$20/30=30/x$

$x = 45$

Desired ratio will be = $72 : 45$

= $8 : 5$

31) Answer A

Solution:

Let the number of Tanks and missiles are in the ratio $5:6$

Forming equation we get,

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$$(5x - 40) / (6x - 32) = 3 / 4$$

On solving above equation we get $x = 32$

So initial tanks = $32 * 5 = 160$

32) Answer: A

Solution:

Ratio of vacancy to reserved for ex-service men 18 : 5

Given: 5000 candidate applied and 4350 rejected so 650 were finally selected and this will also be the vacancy by SSC.

We can say that 5 unit = 650

1 unit = 130 post

18 unit = 2340 vacancy.

33) Answer: A

Solution:

If $(A + C) : (B + C) : C = 7 : 9 : 5$

From above we can say that If we assume $C = 5$ then $B = 4$ and $A = 2$ units.

Given is A is greater than B by 8. So $B - A = 2$ units = 8 value

1 unit = 4

$C - A = 3$ unit * 4 = 12

34) Answer: A

Solution:

MP : CP = 9 : 5.....(1)

profit = 26% = CP : P = 50 : 13.....(2)

Making common ratios we get-

CP : MP : P : SP : D = 50 : 90 : 13 : 63 :

27.....(3)

It is given that MP is 540 more than SP which is equal to 27 units

1 unit = 20 value

CP = 50 units * 20 = 1000/-

35) Answer: A

Solution:

The Speed of boat to the stream is in ratio of 8 : 1

If the speed is increased by 25% then it will become 10 units

Now downstream will be 11 units

11 units = 220 / 10

11 unit = 22 value

1 unit = 2 value

Speed of stream is 2 kmph

Increased speed of boat is 20 kmph

So actual value must be 80% of 20 = 16 kmph

36) Answer: A

Solution:

Total population is 'P'

Voters	:	Non-voters
8	:	9
Male	:	female
2	:	3

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Difference of Non-voters and female is 1800 which is equal to 6 units

So 1 unit = 300 value

Total population = 17 units

Total population = 17 units * 300 = 5100

37) Answer: C

Solution:

$$5A=3B=2C$$

$$5A/30=3B/30=2C/30$$

$$A/6=B/10=C/15$$

$$A:B:C=6:10:15$$

38) Answer: A

Solution:

Final ratio becomes 8 : 11 : 6 after buying one dozen orange.

$$1 \text{ dozen} = 12$$

So 12 is denoted as 6 here.

So multiplying completely by 2.

We get

$$16 : 22 : 12$$

Hence we can say that egg in the bag was 16 in numbers.

39) Answer: A

Solution:

37.5% = 3/8 means 3 is water then 5 is milk

So the ratio of water to milk is 3 : 5.....(1)

Anil puts 20 litre of milk then water becomes 25% in it.

So new ratio becomes 1 : 3.....(2)

$$3x/5x+20=1/3$$

$$9x=5x+20$$

$$X=5$$

So initial quantity of water = 3 x = 15 litres.

40) Answer: A

Solution:

Let the two be 3x and 8x.

According to the condition,

$$3x / 8x = 24 / B$$

$$B = 64$$

41) Answer: A

Solution:

Income of A and B is in the ratio 4 : 3

Saving of A and B is in the ratio 3 : 2

From above statement we can say that if income of A is 4 unit and Saving is 3 then expenditure of A will be 1 unit and this is equal to 2500/-.

Income of B will be 3 units and it will be equals to 3 * 2500 = 7500/-

42) Answer: A

Solution:

Let's assume them as equations,

$$A + B = 7.....(1)$$

$$A - B = 5.....(2)$$

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Solving equations we get,

$$A = 6 \text{ and } B = 1$$

The ratio of $2A : 3B$

$$2 * 6 : 3 * 1$$

$$4 : 1$$

43) Answer: A

Solution:

Initial investment $8 : 9$

Time Ratio $8 : 5$

Total investment $64 : 45$

Profit of A is 16000

$$64 \text{ unit} = 16000$$

$$1 \text{ unit} = 250$$

Initial investment of B = 45 units * 250

Initial investment of B = 11,250

44) Answer: A

Solution:

Let the price of refrigerator = $7x$

Let the price of Mobile = $6x$

According to the Question

$$7x - 6x = 3000$$

$$x = 3000$$

Price of mobile = $6x = 18000$

45) Answer: C

Solution:

Since the given expression is in proportion.

So we can compare them term wise.

We can observe that $a = b = c = 5k$ (let)

And, $d = e = f = 1k$ (let)

Putting all value's in the equations, we get

$$(a + b + c) : (d + e + f) = 15 : 3 = 5:1$$

46) Answer: A

Solution:

Let the number to be decreased be x .

So we will make equation as follows,

$$(6 - x) / (7 - x) = 7 / 6$$

$$X = 13$$

47) Answer: A

Solution:

Price of petrol is decreased by $6.66\% = 1 / 16$

So initial price = 16 Final price = 15

Sale was increased by $10\% = 1 / 10$

So initial value = 10 Final price = 11

Initial revenue = 160 Final revenue = 165

(All values are in units)

16 unit = 64 rupees

1 unit = 4 rupees.

Final revenue = 660/-

48) Answer: A

Solution:

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Ratio of Income of P and Q is 3 : 1

Ratio of expenditure of P and Q is 8 : 3

Ratio of saving is 4 : 1

Cross multiplying income * expenditure = expenditure * savings

$$(3 * 3) - (8 * 1) = (4 * 3) - (8 * 1)$$

$$1 \text{ unit} = 4000/-$$

So income of P is 12,000/-

Alternative Method

Ratio of Income of P and Q is 3 : 1

Ratio of expenditure of P and Q is 8 : 3

Ratio of saving is 4 : 1

Sum of their saving is 5000

$$3x - 4000/x - 1000 = 8/3$$

$$9x - 1200 = 8x - 8000$$

$$X = 4000$$

So income of P = $3x = 12,000/-$

49) Answer: B

Solution:

Given ratio is 3 : 4 : 2.....(1)

If C increased by 50% while B is decreased by 50% then ratio becomes,

$$3 : 2 : 3.....(2)$$

Now C becomes 120. So 3 unit = 120

$$1 \text{ unit} = 40$$

$$3 \text{ unit} = 120$$

$$A = 120$$

50) Answer: A

Solution:

Let the CP and SP of the article be 8x and 9x. So according to the condition we will form equation,

$$(8x + 50) / (9x + 200) = 11 / 13$$

On Solving above equation we get $x = 310$

$$\text{Initial SP} = 9 * 310 = 2790$$

$$\text{Incremented SP} = 2990$$

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