EXERCISE – 8A

Q-1. Express the following as ratios-

  a. 6kg to 10kg

    6 : 10

    3 : 5

  b. 20hrs to 24 hrs

    20 : 24

    5 : 6

  d.. 50km to 70 km

    50 : 70

    5 : 7

Q-2. Express the following ratios in the simplest form –

  a. Rs 7 and 50paise to Rs 4

    750 paise : 400 paise

      15 : 8

  b. 700ml to 1 L

    1 L = 1000 ml

    700 ml : 1000ml

      7 : 10

Q-3. Compare the following –

  a. 3 : 5 and 5 : 7

    $\frac{3}{5} \diagup\!\!\!\diagdown \frac{5}{7}$

    3 x 7 = 21

    5 x 5 = 25   => 25 > 21 Hence , $\frac{3}{5} < \frac{5}{7}$

Q-4. In a farm house , there are 80 cows and 30 buffaloes . what is the ratio of the cows to the buffaloes?

Sol : no of cows = 80 , no of buffaloes = 30

      80 : 30

      8 : 3

Q-6. The measures of the two angles are in the ratio 7 : 8 and they are supplementary angles , what are their measures in degrees?

Sol : Let the angles be 7x and 8x .

A.T.Q.

$7x + 8x = 180$

$15x = 180$

$x = 180/15 = 12$

so angles are : $7x = 7 \times 12 = 84^0$

$8x = 8 \times 12 = 96^0$

Q-7. The sides of a rectangular field are in the ratio 9 : 7 and its perimeter is 144m . Find the sides .

Sol : Let the sides be 9x and 7x

A.T.Q

Perimeter of the rectangular field $= 144$

$2 \times (L + B) = 144$

$2 \times (9x + 7x) = 144$

$2 \times 16x = 144$

$32x = 144$

$x = 144/32 = 4.5m$

Hence sides are , $9x = 9 \times 4.5 = 40.5m$

$7x = 7 \times 4.5 = 31.5m$

Q-8. The sides of a rectangular piece of paper are in the ratio 2 : 3 . If the area is 150 sq. Cm . Find the length of its sides.

Sol : Let the sides be 2x and 3x

A.T.Q.

$$\text{Area } = 150$$

$$\text{L X B} = 150$$

$$2x \text{ X } 3x = 150$$

$$6x^2 = 150$$

$$x^2 = 150/6 = 25 = 5^2$$

$$x = 5\text{cm}$$

Hence sides are , $2x = 2x\ 5 = 10\text{cm}$

$$3x = 3x\ 5 = 15\text{cm}$$

Q-10. Amar divided his collection of stamps in the ratio 6 : 5 between his two sisters Sheila and Amina , if Sheila received 23 stamps more than Amina , how many stamps he distribute?

Sol : Let Sheila's and Amina's part be 6x and 5x

A. T ,Q
$$6x = 5x + 23$$
$$6x - 5x = 23$$
$$x = 23$$
so Sheila's part $= 6x = 6 \text{ x } 23 = 138$
Amina's part $= 5x = 5 \text{ x } 23 = 115$
Total stamps $= 138 + 115 = 253$

Q-11. The numerator and denominator of a fraction are in the ratio 3 : 2 , If 3 is added to the numerator and 2 is subtracted from the denominator , a new fraction is formed whose value is $\dfrac{9}{4}$. Find the original fraction.

Sol : Let the fraction be $\dfrac{3x}{2X}$

A.T.Q.

$$\frac{3x+3}{2x-2} \diagdown \frac{9}{4}$$

$$4 \text{ x } (3x+3) = 9 \text{ x } (2x -2)$$

$$12x + 12 = 18x - 18$$

18x – 12x =12 +18

6x =30

x =30/6 = 5

Hence original fraction , $\frac{3x}{2X}$ = $\frac{3X\,5}{2X\,5}$ = $\frac{15}{10}$

Q-13. Two no are in the ratio 7 : 10 , if the larger no is 140 , what is the smaller no ?

Sol : Let the no be 7x and 10x

A.T.Q.

Larger no = 140

10x = 140

x = 140/10 = 14

smaller no = 7x = 7 X 14 =98

Q-15. The angles of a pentagon are in the ratio 2 : 4 : 2 : 1 : 1 , If the total measures of angles of a pentagon is 540 degrees , what are the measures of each angle ?

Sol : Let the angles be 2x , 4x , 2x , x and x

A.T.Q.

2x+ 4x+ 2x + x + x=540

10x =540

x = 540/10=54^0

Hence angles are

2x = 2 X 54 =108^0

4x = 4 X 54 =216^0

2x = 2 X 54 =108^0

x = 54^0 , x = 54^0

EXERCISE – 8B

Q-1. Are the two ratios 30: 50 and 50 : 75 equivalent?

Sol : $\dfrac{30}{50} \times \dfrac{50}{75}$

    30 x 75 = 2250

    50 x 50 = 2500

    ⇨ No , 30: 50 and 50 : 75 are not equivalent .

Q-3. If Rohit covered 120m in 20 seconds , then in how much time would he cover 210m?

Sol : Let the time taken to cover 210m is x sec.

A.T.Q.

Distance : Distance :: Time : Time

   120 :   240 :: 20 : x

      120x = 210 x 20

      x = $\dfrac{210 \ x \ 20}{120}$ = 35sec.

Q-4. Ten pencils are sold at the cost of Rs 58 . Find the cost of 1 pencil .

Sol : Let the cost of pencil be x

A.T.Q.

Pencils : Pencil :: Cost : Cost

  10 :   1 ::   58 : x

      10x = 58

      x = 58/10 =   Rs5.8

Q-7. 23 people had lunch in a hotel and the rate per lunch is the same for all . If it costs Rs 3105 in total , how much will it cost for 60 people to have lunch in the same hotel at the same rate?

Sol : Let the cost be Rs x.

A.T.Q.

people : people:: Cost of lunch : Cost of lunch

23 : 60 :: 3105 : x

23x = 60 x 3105

23 x = 186300/23 = Rs8100

Q-8. The wages for 35 people in a factory for one day is Rs 7175. If on another day the factory paid Rs 9225, how many people worked on that day , if the wages per day is the same for everyone.

Sol : Let the no of people be x

A.T.Q.

people : people:: wages : wages

35 : x :: 7175 : 9225

7175x = 35x 9225

x = 322875/7175 = 45 people.

Q-10. In his orchard , Franchis had planted 450 trees and had used 675kg of manure . If he wants to plant 160 more plants , how many more manure does he need to buy?

Sol : let the manure needed be x kg.

A.T.Q.

Trees : Trees:: manure : manure

$$450 : 160 :: 675 : x$$

$$450x = 160 \times 675$$

$$x = \frac{160 \times 675}{450} = 240 \text{ kg}$$

EXERCISE – 8C

Q-1. 125g of yoghurt provides 4.5g of protein . How many grams of protein does 100 g of yoghurt provide?

Sol : 125g yoghurt provides protein = 4.5 g

1g ,, ,, ,, ,, $= \frac{4.5}{125}$

100g ,, ,, ,, $= \frac{4.5}{125} \times 100 = 3.6g$

Q-2. In a polutry farm , every 100 birds provide an average of 72 eggs . How many birds will produce 324 eggs?

Sol : 72 eggs provided by = 100 birds

1 egg ,, ,, $= \frac{100}{72}$

324 eggs ,, ,, $= \frac{100}{72} \times 324 = 450$ birds.

Q-4. 50 people consume an average of 110 kg of rice in a week. If 20 more people join this group , how many kg of rice will be needed for a week ?

Sol : Rice consumed by 50 people in a week = 110kg

Rice ,, ,, 1 people ,, $= \frac{110}{50}$

Rice ,, ,, 70 people ,, $= \frac{110}{50} \times 70 = 154$ kg.

Q- 5. 24 students collected Rs 108 by buying a raffle ticket each . How many students will have to buy a raffle ticket each to collect Rs 315.

Sol : Rs 108 collected by students = 24

Rs 1 ,, ,, ,, $= \frac{24}{108}$

Rs 315 ,, ,,, ,, $= \frac{24}{108} \times 315 = \frac{7560}{108} = 70$ students.

Q-6. The total wages of a team of 30 labourers were Rs 3450 per day . What will be the total wages of if 12 more labourers were added to the team ?

Sol : Wages for 30 labourers = 3450

Wages for 1 labour $= \frac{3450}{30}$

Wages for 42 labourers $= \frac{3450}{30} \times 42 = $ Rs 4830

Q-7. In 3 hrs , a train covers 195 km . Travelling at the same speed , what distance would the train cover in 5 hrs?

Sol : Distance covered in 3 hrs = 195 km

Distance covered in 1 hr $= \frac{195}{3}$

Distance covered in 5 hrs $= \frac{195}{3} \times 5 = 325$ km.