EXERCISE – 10B

Q-1. State which of the following are in proportion-

    a.   7: 3 :: 63 : 27

      7 : 3   = 7 : 3

      63 : 27 = 7 : 3   => they are in proportion.

      7   : 3

    b.   60g : 50G :: 180l : 150l

      60g : 50g = 6 : 5

      180l : 150l = 6 : 5

       6   :   5   => they are in proportion

Q-2. Find x in each of the following proportion –

    a.   x : 12 :: 14 : 24

      Product of extremes = product of means

      x : 12 :: 14 : 24

  Product of extremes = Product of means

      x X 24 = 12 x 14

      24x = 168

      x = 168/24 = 7

    b.   15 : 7 :: 60 : x

      Product of extremes = product of means

      15 : 7 :: 60 : x

  Product of extremes = Product of means

      15X x = 7 x 60

      15x = 420

      x = 420 / 15 = 28

    e..   18 : x = 27 : 3

Product of extremes = product of means

$$18 : x :: 27 : 3$$

Product of extremes = Product of means

$$18 \times 3 = x \times 27$$
$$54 = 27x$$
$$x = 54 / 27 = 2$$

Q-4. Determine if the following ratios form a proportion –

a. 25cm : 1cm and Rs 40 : Rs 160

25cm : 1cm = 25 : 1

Rs 40 : Rs 160 = 1 : 4

1 : 4   => no , they are not in proportion

c.. 39litres : 195 litres and 7 bottles : 35 bottles

39litres : 195 litres = 1 : 5

1 : 5

7 bottles : 35 bottles = = 1 : 5

1 : 5   => yes , they are in proportion

Middle terms = 195 , 7

Extreme terms = 39 , 35

Q-5. If 4 litres of petrol cost Rs 248, how many litres of petrol can be purchased for Rs 434?

Sol : let x litre of petrol can be purchased.

Petrol : petrol ::   Rs   : Rs

4 :   x   ::   248   : 434

$$4 \times 434 = x \times 248$$
$$248x = 1736$$
$$x = 1736 / 248 = 7 \text{ litres}$$

Q-7. If 12 chocolate bars cost Rs 180 , what would be the cost of 30 chocolate bars.

Sol : let the cost be Rs x.

Chocolate : chocolate :: cost : cost

12   :   30   ::   180   :   x

12 X x = 30x 180

12x = 5400

x = 5400 / 12 = Rs450

Q-9 John purchased 24 chocolates for Rs 96 . How many chocolates can be purchased for Rs 72?

Sol : Let the chocolates be x.

Chocolates : chocolates :: Rs : Rs

24 :   96   ::   x :   72

24 x 72 = 96 X x

96x = 1728

x = 1728/96 =18 chocolates.

Q-10. We need 20kg of rice to serve 100 people . How much rice would be needed for 40 people?

Sol : let the rice be xkg.

Rice : Rice :: people : people

20 : x :: 100 : 40

20 x 40 = x X 100

100x = 800

x = 800 / 100 = 8kg

Q-13. Shekhar drives his car at a constant speed . if he travels 8km in 10min , how long will he take to travel 36km.

sol : let the time be x min.

Distance : Distance :: Time : Time

8 : 36 :: 10 : x

8x = 36 x 10

8x = 360

  x = 360/8 =45 min.

Q-16. The interest on Rs 3000 for one year is Rs 210 . What is the interest on Rs 4500 for a tear ? If one wants to get an interest of Rs 700 , what should be the principal?

Sol : Let the interest be Rs x.

Principal : principal :: interest :interest

3000 : 4500 :: 210 :   x

3000x = 210 x 4500

3000x = 954000

x = 945000/3000 = Rs 315

   Part -2

Let the principal be Rs x

   Principal : principal :: interest :interest

3000 : x   :: 210 :   700

3000x 700 = 210 X x

210x = 2100000

x = 2100000/210= Rs 10000