Unitary Method

EXERCISE 13(A)

Question 1.
The price of 25 identical articles is ₹ 1,750. Find the price of :
(i) one article
(ii) 13 articles
Solution:
The price of 25 articles = ₹ 1,750
(i) Price of one article = ₹ $\frac{1750}{25}$ = ₹ 70
(ii) Now, Price of 13 articles = 13 x ₹ 70 = ₹ 910

Question 2.
A motorbike travels 330 km in 5 litres of petrol. How much distance will it cover in :
(i) one litre of petrol?
(ii) 2.5 litres of petrol?
Solution:
(i) Consuming 5 litres petrol in 30 km
Consuming 1 litre petrol, motorbike covers = $\frac{330}{5}$ km = 66 km
(ii) Consuming 2.5 litres petrol = 66 x 2.5 = 165 km

Question 3.
If the cost of a dozen soaps is ₹ 460.80, what will the cost of:
(i) each soap ?
(ii) 15 soaps ?
(iii) 3 dozen soaps ?
Solution:
(i) Cost of one dozen soap = ₹ 460.80
In one dozen = 12 soaps
Cost of each soap = ₹ $\frac{460.80}{12}$ = ₹ 38.4
(ii) Cost of 15 soaps = 15 x ₹ 38.4 = ₹ 576
(iii) Cost of 3 dozen soaps = (12 x 3 = 36) = 36 x ₹ 38.4 = ₹ 1382.4

Question 4.
The cost of 35 envelops is ₹ 105. How many envelops can be bought for ₹ 90?
Solution:
Envelops purchased by ₹ 105 = 35
Envelopes purchased by ₹ 1 = $\frac{35}{105}$
In ₹ 90, the envelop will be bought = $\frac{35}{105}$ x 90 = 30

Question 5.
If the cost of 8 cans of juice is ₹ 280, then what will be the cost of 6 cans of juice?
Solution:
Cost of 8 cans of juice = ₹ 280

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Cost of 1 can of juice = $\frac{280}{8}$ = ₹ 35
then, cost of 6 cans of juice = 6 x ₹ 35 = ₹ 210

Question 6.
For ₹ 378, 9 cans of juice can be bought, then how many cans of juice can be bought for ₹ 504?
Solution:
In ₹ 378, the juice can bought = 9 cans
In ₹ 504, the cans of juice will be bought = $\frac{9}{378}$
12 cans of juice can be bought in ₹ 504.

Question 7.
A motorbike travels 425 km in 5 hours. How much distance will be covered by it in 3.2 hours?
Solution:
Distance covered by motorbike = 425 km
Time taken = 5 hours
Distance covered by motorbike in 1 hour = $\frac{425}{5}$ km/hr = 85 km/hr
Then, distance covered in 3.2 hours = 85 x 3.2 = 272 km/hr

Question 8.
If the cost of a dozen identical articles is ₹ 672, what will be the cost of 18 such articles?
Solution:
Cost of one dozen articles = ₹ 672
Cost of one article = ₹ $\frac{672}{12}$ = ₹ 56
Cost of 18 articles = ₹ 56 x 18 = ₹ 1008

Question 9.
A car covers a distance of 180 km in 5 hours.
(i) How much distance will the car cover in 3 hours with the same speed?
(ii) How much time will the car take to cover 54 km with the same speed?
Solution:
Distance covered by car 180 km in 5 hours
(i) Distance covered in 1 hour = $\frac{180}{5}$ = 36 km
Distance covered in 3 hours = 3 x 36 = 108 km
(ii) To cover a distance of 180 km, time taken = 5 hours
To cover a distance of 1 km, time taken = $\frac{5}{180}$
To cover a distance of 54 km, time taken = $\frac{5}{180}$ x 54 = 1.5 hours

Question 10.
If it has rained 276 cm in the last 3 days, how many cm of rain will fall in one week (7 days) ?

Assume that the rain continues to fall at the same rate.

Solution:

Rate of rainfall in 3 days = 276 cm

Rainfall in one day = $\frac{276}{3}$ = 92 cm

Rainfall in one week = 92 x 7 = 644 cm

Question 11.

Cost of 10 kg of wheat is ₹ 180.

(i) What is the cost of 18 kg of wheat ?

(ii) What quantity of wheat can be purchased in ₹ 432 ?

Solution:

Cost of 10 kg wheat = ₹180

(i) Cost of 1 kg wheat = $₹\frac{180}{10}$ = ₹18

∴ Cost of 18 kg wheat = 18 × ₹18

= ₹324

(ii) Wheat purchased by ₹180 = 10 kg

Wheat purchased by ₹ 1 = $\frac{10}{180}$

∴ Wheat purchased by ₹432

= $\frac{10}{180} \times 432$

= 24 kg

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Question 12.

Rohit buys 10 pens for ₹ 150 and Manoj buys 14 pens for ₹ 168. Who got the pens cheaper?

Solution:

Rohit buys 10 pens = ₹ 150

Cost of one pen = $\frac{150}{10}$ = ₹ 15

Manoj buys 14 pens = ₹ 168

Cost of one pen = $\frac{168}{14}$ = ₹ 12

Manoj buys cheaper pen.

Question 13.

A tree 24 m high casts a shadow of 15 m. At the same time, the length of the shadow casted by some other tree is 6 m. Find the height of the tree.

Solution:

Height of a tree which casts a shadow of 15 m = 24 m

Height of a tree which casts a shadow 24 of 1 m = $\frac{24}{15}$ m

Height of a tree which casts a shadow of 6 m = $\frac{24}{15}$ x 6 = 9.6 m

Question 14.

A loaded truck travels 18 km in 25 minutes. If the speed remains the same, how far can it travel in 5 hours?

Solution:

A loaded truck travels in 25 minutes a distance of = 18 km

A loaded truck travels in 1 min a distance of = $\frac{18}{25}$ km

A loaded truck travels in shows or 300 minutes, a distance of = $\frac{18}{25}$ x 300 = 216 km

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