Unitary Method
Exercise 9A

Q1

Answer :

Cost of 15 oranges = Rs 110

Cost of 1 orange = Rs $\frac{110}{15}$

∴ Cost of 39 oranges = Rs $\frac{110}{15} \times 39$ = Rs 286

Q2

Answer :

Amount of sugar bought for Rs 260 = 8 kg

Amount of sugar bought for Re 1 = $\frac{8}{260}$ kg

Now, amount of sugar bought for Rs 877.50 = $\frac{8}{260} \times 877.50$ kg = 27 kg

∴ 27 kg of sugar can be bought for Rs 877.50.

Q3

Answer :

Length of the silk purchased for Rs 6290 = 37 m

Length of the silk purchased for Re 1= $\frac{37}{6290}$ m

Now, length of the silk purchased for Rs 4,420 = $\frac{37}{6290} \times 4420$ m = 26 m

∴ 26 m of silk can be purchased for Rs 4,420.

Q4

Answer :

Number of days for which a worker is paid Rs 1,110 = 6

Number of days for which a worker is paid Re 1 = $\frac{6}{1110}$ days

Now, number of days for which a worker is paid Rs 4625=$\frac{6}{1110} \times 4625$ days = 25 days

∴ The worker worked 25 days in a month.

Q5

Answer :

Distance covered by the car with 42 L of petrol = 357 km

Distance covered by the car with 1 L of petrol = $\frac{357}{42}$ km [less petrol, less distance]

Now, distance covered by the car with 12 L of petrol = $\frac{357}{42} \times 12$ = 102 km [more petrol, more distance]

Q6

Answer :

Cost of travelling 900 km by train = Rs 2520

Cost of travelling 1 km by train = Rs $\frac{2520}{900}$

Now, cost of travelling 360 km by train =Rs $\frac{2520}{900} \times 360$ = Rs 1008

∴ The train fare for a journey of distance 360 km is Rs 1,008.

Q7

Answer :

Time taken to cover a distance of 51 km = 45 min

Time taken to cover a distance of 1 km = $\frac{45}{51}$ min

Time taken to cover distance of 221 km = $\frac{45}{51} \times 221$ min = 195 min = 3 h 15 min

∴ The train will take 3 h 15 min to cover a distance of 221 km.

Q8

Answer :

Length of the iron rod that weighs 85.5 kg = 22.5 m

Length of the iron rod that weighs 1 kg = $\frac{22.5}{85.5}$ m [less weight, less length]

∴ Length of the iron rod that weighs 22.8 kg = $\frac{22.5}{85.5} \times 22.8$ m = 6 m [more weight, more length]

Q9

Answer :

Number of paper sheets that weighs 162 g = 6
Number of paper sheets that weighs 1 g = $\frac{6}{162}$ [less weight, less sheets]
∴ Number of paper sheets that weighs 13.5 kg = $\frac{6}{162} \times 13.5 \times 1000$ = 500 [more weight, more sheets]

Q10

Answer :

Number of cartons needed to pack 1152 soap bars = 8
Number of cartons needed to pack 1 soap bar = $\frac{8}{1152}$ [less number of soaps, less number of cartons needed]
Now, number of cartons needed to pack 3888 soap bars = $\frac{8}{1152} \times 3888$ = 27 [more soaps, more carton needed]

∴ 27 cartons are needed to pack 3888 soap bars.

Q11

Answer :

Number of cardboards in a pile of thickness 44 mm = 16
Number of cardboards in a pile of thickness 1 mm = $\frac{16}{44}$
Number of cardboards in a pile of thickness 71.5 cm = $\frac{16}{44} \times 71.5 \times 10$ = 260 [1 cm=10 mm]
∴ 260 cardboards will be there in a pile of thickness 71.5 cm.

Q12

Answer :

Height of the flagstaff that casts a shadow of length 8.2 m = 7 m
Height of the building that casts a shadow of length 1 m = $\frac{7}{8.2}$ m
Height of the building that casts a shadow of length 20.5 m = $\frac{7}{8.2} \times 20.5$ m = 17.5 m
∴ The height of the required building is 17.5 m.

Q13

Answer :

Number of men employed to built the 16.25 m long wall = 15
Number of men required to built a 1 m long wall = $\frac{15}{16.25}$

Number of men that should be employed to built a 26 m long wall = $\frac{15}{16.25} \times 26$ = 24
∴ 24 men should be employed to build a wall of length 26 m in a day.

Q14

Answer :

Number of patients who can consume 1350 L of milk = 60
Number of patients who can consume 1 L of milk = $\frac{60}{1350}$
Now, number of patients who can consume 1710 L of milk = $\frac{60}{1350} \times 1710$ = 76

Hence, 76 patients can be accommodated in the hospital if the monthly ration of milk is raised to 1710 L.

Q15

Answer :

Weight that would produce an extension of 2.8 cm = 150 g

Weight that would produce an extension of 1 cm = $\frac{150}{2.8}$ g

Weight that would produce an extension of 19.6 cm = $\frac{150}{2.8} \times 19.6$ = 1050 g = 1 kg 50 g [1 kg = 1000 g]

∴ A weight of 1 kg 50 g would produce an extension of 19.6 cm.

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April 18, 2017 by Rajashekhar — 1 Comment

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Unitary Method RS Aggarwal Class 7 Maths Solutions Exercise 9B

Unitary Method RS Aggarwal Class 7 Maths Solutions Exercise 9B

Q1

Answer :

48 men can dig a trench in 14 days.
1 man can dig the trench in 14 × 48 days. [less men, more days]
Therefore, 28 men can dig the trench in $\frac{14\times48}{28}$ days = 24 days [more men, less days]
Hence, 28 men will take 24 days to dig a similar trench.

Q2

Answer :

No. of men required to reap the field in 30 days = 16
No. of men required to reap the field in 1 day = 16 ×30 (less days, more men)
Now, no. of men required to reap the field in 24 days = $\frac{16\times30}{24}$ = 20 (more days, less men)

∴ 20 men are required to reap the field in 24 days.

Read More about Ratio and Proportion

Q3

Answer :

Number of cows that can graze the field in 13 days = 45
Number of cows that can graze the field in 1 day = 45 ×13 [Less days, more cows]
Therefore, number of cows that can graze the field in 9 days = $\frac{45\times13}{9}$ = 65 [More days, less cows]

Hence, 65 cows can graze the field in 9 days.

Q4

Answer :

Time taken by 16 horses to consume the corn = 25 days
Time taken by 1 horse to consume the corn = 25×16 [less horses, more time taken]
Time taken by 40 horses to consume the corn = $\frac{25\times16}{40}$= 10 days [more horses, less time taken]

Hence, 40 horses would consume the same quantity of corn in 10 days.

Q5

Answer :

Days taken to finish the book if 18 pages are read everyday = 25
Days taken to finish the book if 1 page is read everyday = 18 ×25 [less pages, more days]
Now, days taken to finish the book if 15 pages are read everyday = $\frac{18\times25}{15}$ = 30 [more pages, less days]
Hence, the girl will take 30 days to finish the book if she reads 15 pages everyday.

Q6

Answer :

Time taken to type 40 words per minute = 24 min
Time taken to type a word per minute = 24×40 min
Now, time taken to type 48 words per minute = $\frac{24\times40}{48}$ = 20 min

Hence, Geeta will take 20 minutes to type the same document if her typing speed is 48 words/min.

Q7

Answer :

Time taken to cover the distance at a speed of 45 km/h = 3 h 20 min = 200 min
Time taken to cover the distance at a speed of 1 km/h = 45 × 3.33 min [less speed, more time]
Time taken to cover the distance at a speed of 36 km/h = $\frac{45\times3.33}{36}$ = 4.1625 h ≈ 4 h 10 min

Hence, the bus will take 4 h 10 min to cover the distance if its speed is 36 km/h.

Q8

Answer :

Time taken to make 240 tonnes of steel = 30 days
Time taken to make 1 tonne of steel = 30 × 240 days
Now, time taken to make 300 or (240 + 60) tonnes of steel = $\frac{30\times240}{300}$ = 24 days

∴ The materials will last for 24 days if 60 more tonnes of steel is to be made that month.

Q9

Answer :

Initially, the contractor had 210 men for 60 days. After 12 days, 70 more men joined.

210 men can finish the work in 48 days
1 man can finish the work in 210×48 days
Now, 280 men can finish the work in $\frac{210\times48}{280}$ days = 36 days.

Hence, it will take 36 days to finish the remaining work.

Q10

Answer :

No. of men for which the provision will last for 25 days = 360
No. of men for which the provision will last for 1 day = 360 ×25
Now, no. of men for which the provision will last for 30 days = $\frac{360\times25}{30}$ = 300

∴ 60 men, i.e., (360 – 300), must be transferred to another camp so that the provision lasts for 30 days.

11

Answer :

Number of days for which the food is sufficient for 120 men = 195
Number of days for which food is sufficient for 1 man = 120×195
Number of days for which food is sufficient for 90 men = $\frac{120\times195}{90}$ = 260

Hence, the food will last for 260 days.

Q12

Answer :

We are given that in a fort, 1200 soldiers had enough food for 28 days.
Let *x* soldiers left after 4 days, thus, remaining soldiers = 1200 - *x*
Now, for these remaining soldiers food lasts for 32 days.
As number of soldiers decrease, food lasts long.

Thus, situation after 4 days is

$$1200 \times 24 = (1200 - x) \times 32$$
$$\Rightarrow (1200 - x) = \frac{1200\times24}{32}$$
$$\Rightarrow 1200 - x = 900$$
$$\Rightarrow x = 1200 - 900$$
$$\Rightarrow x = 300$$

Thus, 300 soldiers left the fort after 4 days

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Unitary Method
Exercise 9C

Q1

Answer :

(c) 45.6 kg

Weight of the rod of length 4.5 m = 17.1 kg
Weight of the rod of length 1 m = $\frac{17.1}{4.5}$ kg [less length, less weight]

∴ Weight of the rod of length 12 m = $\frac{17.1}{4.5} \times 12$ = 45.6 kg [more length, more weight]

Q2

Answer :

(d) none of these

0.8 cm represents 8.8 km.

1 cm represents $\frac{8.8}{0.8}$ km.

80.5 cm represents $\frac{8.8}{0.8} \times 80.5$ = 885.5 km.

Q3

Answer :

Distance covered in 20 min = 5 km
Distance covered in 1 min = $\frac{5}{20}$ km [less time, less distance covered]
Distance covered in 50 min = $\frac{5}{20} \times 50$ = 12.5 km [more time, more distance covered]
Hence, Raghu will cover a distance of 12.5 km in 50 minutes.

Thus, the correct option is (c).

Q4

Answer :

Number of days for which 500 men have enough food = 24
Number of days for which 1 man has enough food = 24 × 500 [less men, more food]
Number of days for which 800 men have enough food = $\frac{24 \times 500}{800}$ = 15 [more men, less food]
Hence, the food will last for 15 days after the reinforcement of 300 men.

Thus, the correct option is (d).

Q5

Answer :

Time taken to fill $\frac{4}{5}$ of a cistern = 1 min
Time taken to fill 1 cistern $= \frac{5}{4}$ min
Time taken to fill $\frac{1}{5}$ of a cistern = $\frac{5}{4} \times \frac{1}{5} = \frac{1}{4}$ min = 15 seconds

Hence, it will take 15 seconds to fill the rest of the cistern.

Thus, the correct option is (b).

Q6

Answer :

Number of cows that eat as much as 15 buffaloes = 21
Number of cows that eat as much as 1 Buffalo = $\frac{21}{15}$
Number of cows that eat as much as 35 buffaloes = $\frac{21}{15} \times 35$ = 49
Hence, 49 cows will eat as much as 35 buffaloes.

Thus, the correct option is (a).

Q7

Answer :

(b) 75 m

Height of the tree that casts a 4 m long shadow = 6 m
Height of the tree that casts a 1 m long shadow = $\frac{6}{4}$ m
∴ Height of the flag pole that casts a 50 m long shadow = $\frac{6}{4} \times 50$ = 75 m

Q8

Answer :

8 men finish the work in 40 days.
1 man can finish the work in 8×40 days. [Less men, more days]
10 men can finish the work in $\frac{8\times40}{10}$ = 32 days. [More men, less days]
∴ If 2 more men join them, the work will be completed in 32 days.

The correct option is (b).

Q9

Answer :

Number of days taken to reap the field by 16 men = 30 days
Number of days taken to reap the field by 1 man = 30×16 days [Less men, more days]
Number of days taken to reap the field by 20 men = $\frac{30\times16}{20}$ = 24 days [More men, less days]

Hence, 20 men will take 24 days to reap the field.

The correct option is (b).

Q10

Answer :

Time taken to fill the tank by 10 pipes = 24 min
Time taken to fill the tank by 1 pipe = 24 ×10 min [Less pipes, more time taken]
Time taken to fill the tank by 8 pipes = $\frac{24\times10}{8}$ min = 30 min [More pipes, less time taken]
Hence, it will take 30 minutes to fill the tank if two pipes go out of order.

The correct option is (c).

Q11

Answer :

Cost of 72 eggs = Rs 108
Cost of 1 egg = Rs $\frac{108}{72}$
Cost of 132 eggs = RS $\frac{108}{72} \times 132$ = Rs 198

Hence, 132 eggs will cost Rs 198.

The correct option is (d).

Q12

Answer :

Time taken by 12 workers to complete the job = 4 h
Time taken by 1 worker to complete the job = 4×12 h
Time taken by 15 workers to complete the job = $\frac{4\times12}{15}$ = 3 h 12 min

Hence, 15 workers will complete the job in 3 h 12 min.

The correct option is (b).

Q13

Answer :

500 men had enough food for 24 days.
1 man had enough food for 24×500 days. [Less men, more days]
800 men had enough food for $\frac{24\times500}{800}$ = 15 days [More men , less days]

Hence, the food will now last for 15 days after the reinforcement of 300 men.

The correct option is (a).

Q14

Answer :

(c) 98

No. of rounds around the cylinder of radius 14 cm = 140
No. of rounds around the cylinder of radius 1 cm = 140×14 [Less radius, more rounds]
No. of rounds around the cylinder of radius 20 cm = $\frac{140\times14}{20}$ = 98 [More radius, less rounds]

Hence, the rope makes 98 rounds around the circumference of the cylinder of radius 20 cm.

Q15

Answer :

No. of toys made in $\frac{2}{3}$ h = 1
No. of toys made in 1 h = $\frac{3}{2}$
No. of toys made in $7\frac{1}{3}$ h = $\frac{3}{2} \times \frac{22}{3} = 11$

Hence, the worker will make 11 toys in $7\frac{1}{3}$ h.

The correct option is (d).

Q16

Answer :

Men required to finish the work in 8 days = 10
Men required to finish the work in 1 day = 10×8 [More day, less men]
Men required to finish the work in half a day = $\frac{10\times8}{\frac{1}{2}} = 10 \times 8 \times 2$= 160 [Less days, more men]
Hence, 150 (i.e., 160 − 10) men are added to finish the work in half a day.

The correct option is (d).