

EXERCISE 17(A)

1. A train covers 51 km in 3 hours. Calculate its speed. How far does the train go in 30 minutes?

Solution:

Given

A train covers 51 km in 3 hours

So, distance = 51 km

Time = 3 hours

Hence,

Speed = 51 km / 3 hours

We get,

= 17 km/h

Now for 30 minutes

Speed = 17 km/h

Time = 0.5 hours

Hence,

Distance = 17 $\times$ 0.5

We get,

= 8.5 km

Therefore, train covered 8.5 km in 30 minutes

2. A motorist travelled the distance between two towns, which is 65 km, in 2 hours and 10 minutes. Find his speed in metre per minute.

Solution:

Given

A motorist travelled the distance 65 km in 2 hours and 10 minutes

So, distance = 65 km

Time = 2 hours 10 minutes

Hence,

Speed = 65 km / (2 hours + 10 minutes)

We know that,

1 km = 1000 m

1 hour = 30 min

= 65 (1000 m) / [2 (60 min) + 10 min]

= 65000 m / 130 min

We get,

= 500 m/min

Therefore, the speed of a motorist in meter per minute is 500 m/min

3. A train travels 700 metres in 35 seconds. What is its speed in km/h?

Solution:

Given

A train travels 700 metres in 35 seconds

So, distance = 700 m

Time = 35 sec

Hence,

Speed = 700 m / 35 sec

1000 m = 1 km

1 m = 0.001 km

700 m = 0.001×700

= 0.7 km

3600 seconds = 1 hour

1 sec = $1 / 3600$ hour

35 sec = $35 / 3600$

Now,

Speed = Distance / Time

= $[0.7 / (35 / 3600)]$

We get,

= $(0.7 \times 3600) / 35$

= $2520 / 35$

= 72 km/h

Therefore, the speed of train is 72 km/h

4. A racing car covered 600 km in 3 hours 20 minutes. Find its speed in metre per second. How much distance will the car cover in 50 sec?

Solution:

Given

A racing car covered 600 km in 3 hours and 20 minutes

So, distance = 600 km

Time = 3 hours 20 minutes

Hence,

Speed = 600 km / (3 hours + 20 minutes)

= $600 (1000\text{m}) / [3(60 \text{ min}) + 20 \text{ min}]$

We get,

= $600000\text{m} / 200 \text{ min}$

= $600000\text{m} / 200 (60 \text{ sec})$

We get,

= $600000 / 12000 \text{ sec}$

$$= 50 \text{ m / sec}$$

Thus, speed in meter per second is 50 m / sec

Now, the distance covered by car in 50 sec is calculated as below

$$\text{Speed} = 50 \text{ m / sec}$$

$$\text{Time} = 50 \text{ sec}$$

Hence,

$$\text{Distance} = 50 \times 50$$

$$= 2500 \text{ m}$$

$$= 2.5 \text{ km}$$

Therefore, the distance covered by car in 50 seconds is 2.5 km

5. Rohit goes 350 km in 5 hours. Find:

(i) his speed

(ii) the distance covered by Rohit in 6.2 hours

(iii) the time taken by him to cover 210 km

Solution:

(i) his speed

Given

Rohit goes 350 km in 5 hours

So, distance = 350 km

Time = 5 hours

Hence,

$$\text{Speed} = 350 \text{ km / 5 hours}$$

We get,

$$= 70 \text{ km/h}$$

Hence, Rohit speed is 70 km/h

(ii) the distance covered by Rohit in 6.2 hours

Given

Rohit goes 350 km in 5 hours

So, distance = 350 km

Time = 5 hours

Hence,

$$\text{Speed} = 350 \text{ km / 5 hours}$$

We get,

$$= 70 \text{ km/h}$$

Now, the distance covered by Rohit in 6.2 hours is calculated as below

$$\text{Speed} = 70 \text{ km/h}$$

$$\text{Time} = 6.2 \text{ hours}$$

Hence,

$$\text{Distance} = 70 \times 6.2$$

$$= 434 \text{ km}$$

Therefore, Rohit covers 434 km in 6.2 hours

(iii) the time taken by him to cover 210 km

Given

Rohit goes 350 km in 5 hours

So, distance = 350 km

Time = 5 hours

Hence,

$$\text{Speed} = 350 \text{ km} / 5 \text{ hours}$$

We get,

$$= 70 \text{ km/h}$$

Now, the time taken by Rohit to cover 210 km is calculated as below

Distance = 210 km

Speed = 70 km/h

Hence,

$$\text{Time} = 210 \text{ km} / 70 \text{ km/h}$$

$$= 3 \text{ hours}$$

Therefore, the time taken by Rohit to cover 210 km is 3 hours

6. A boy drives his scooter with a uniform speed of 45 km/h. Find:

(i) the distance covered by him in 1 hour 20 min

(ii) the time taken by him to cover 108 km

(iii) the time taken to cover 900 m

(i) the distance covered by him in 1 hour 20 min

Given

Speed of scooter is 45 km/h

Speed = 45 km/h

Time = 1 hours 20 minutes

Hence,

$$\text{Distance} = 45 \times (1 + 20 / 60)$$

$$= 45 \times (1 + 1 / 3)$$

We get,

$$= 45 \times 4 / 3$$

$$= 15 \times 4$$

$$= 60$$

Hence, the distance covered by a boy in 1 hour 20 minutes is 60 km

(ii) the time taken by him to cover 108 km

Given

Speed of scooter is 45 km/h

So, speed = 45 km/h

Distance = 108 km

Hence,

Time = 108 km / 45 km/h

We get,

= $12 / 5$ h

= $2\frac{2}{5}$ h

This is equal to,

= 2 hours ($2 / 5 \times 60$) min

= 2 hours (2×12) min

= 2 hours 24 min

Hence, the boy taken by a boy to cover 108 km distance is 2 hours 24 min

(iii) the time taken to cover 900 m

Given

Speed of scooter is 45 km/h

So, speed = 45 km/h

Distance = 900 m

Hence,

Time = 900 m / 45 km/h

= $(900 / 1000) \times 1 / 45$

We get,

= $(9 / 10) \times (1 / 45)$

= $1 / 50$ h

= $1 / 50 \times 60$ min

= $6 / 5$ min

This can be written as,

= 1 min $1 / 5$ sec

= 1 min ($1 / 5 \times 60$) sec

We get,

= 1 min 12 sec

Hence, the time taken by a boy to cover 900 m is 1 min 12 sec

7. I travel a distance of 10 km and come back in $2\frac{1}{2}$ hours. What is my speed?

Solution:

Given

10 km distance travelled twice in $2\frac{1}{2}$ hours

So, distance = 10 km + 10 km

$$= 20 \text{ km}$$

$$\text{Time} = 2 \frac{1}{2} \text{ hours}$$

This can be written as,

$$\text{Time} = 5 / 2 \text{ hours}$$

Hence,

$$\text{Speed} = [20 \text{ km} / (5 / 2 \text{ hours})]$$

$$= (20 \times 2) / 5$$

We get,

$$= 40 / 5$$

$$= 8 \text{ km/h}$$

Hence, the speed of a person to cover a distance of 10 km twice is 8 km/h

8. A man walks a distance of 5 km in 2 hours. Then he goes in a bus to a nearby town, which is 40 km, in further 2 hours. From there, he goes to his office in an autorickshaw, a distance of 5 km, in $\frac{1}{2}$ hour. What was his average speed during the whole journey?

Solution:

Given

A man walks a distance of 5 km in 2 hours

40 km distance is covered by bus in 2 hours

5 km distance is covered by autorickshaw in $\frac{1}{2}$ hour

Hence,

Total distance covered by a man during whole journey is calculated as below

$$\text{Total distance} = 5 \text{ km} + 40 \text{ km} + 5 \text{ km}$$

$$= 50 \text{ km}$$

Total time taken by a man during whole journey

$$\text{Total time} = 2 + 2 + \frac{1}{2}$$

$$= (4 + 4 + 1) / 2$$

We get,

$$= 9 / 2 \text{ hours}$$

Hence,

$$\text{Average speed} = 50 \text{ km} / (9 / 2) \text{ hours}$$

$$= (50 \times 2) / 9 \text{ km/h}$$

$$= 100 / 9 \text{ km/h}$$

$$= 11 \frac{1}{9} \text{ km/h}$$

Therefore, the average speed taken by a man during whole journey is $11 \frac{1}{9} \text{ km/h}$

9. Jagan went to another town such that he covered 240 km by a car going at 60 kmh^{-1} . Then he covered 80 km by a train, going at 100 kmh^{-1} and the rest 200 km, he covered by a bus, going at 50 kmh^{-1} . What was his average speed during the whole journey?

Solution:

Given

Jagan covered 240 km distance by a car at 60 km/h

He travelled 80 km distance by train at 100 km/h

He travelled 200 km distance by a bus at 50 km/h

Hence,

$$\begin{aligned}\text{Total distance travelled by Jagan} &= 240 \text{ km} + 80 \text{ km} + 200 \text{ km} \\ &= 520 \text{ km}\end{aligned}$$

Now, total time taken by during whole journey is shown below

$$\text{Time taken by car} = 240 \text{ km} / 60 \text{ km/h}$$

$$= 4 \text{ hours}$$

$$\text{Time taken by a train} = 80 \text{ km} / 100 \text{ km/h}$$

$$= 4 / 5 \text{ hours}$$

$$\text{Time taken by bus} = 200 \text{ km} / 50 \text{ km/h}$$

$$= 4 \text{ hours}$$

$$\text{So, total time taken} = 4 + 4 / 5 + 4$$

$$= (20 + 4 + 20) / 5$$

We get,

$$= 44 / 5 \text{ hours}$$

Hence,

$$\text{Average speed} = \text{total distance} / \text{total time}$$

$$= 520 \text{ km} / (44 / 5) \text{ hours}$$

$$= [(520 \times 5) / 44] \text{ km/h}$$

$$= (130 \times 5) / 11 \text{ km/h}$$

$$= 650 / 11 \text{ km/h}$$

$$= 59 \frac{1}{11} \text{ km/h}$$

Hence, the average speed during the whole journey is $59 \frac{1}{11} \text{ km/h}$

10. The speed of sound in air is about 330 ms^{-1} . Express this speed in kmh^{-1} . How long will the sound take to travel 99 km?

Solution:

Given

Speed of sound in air = 330 m/sec

So, speed = 330 m/sec

Distance = 99 km

= 99×1000

We get,

= 99000 m

Hence,

Time = $[(99000 \text{ m}) / (330 \text{ m/sec})]$

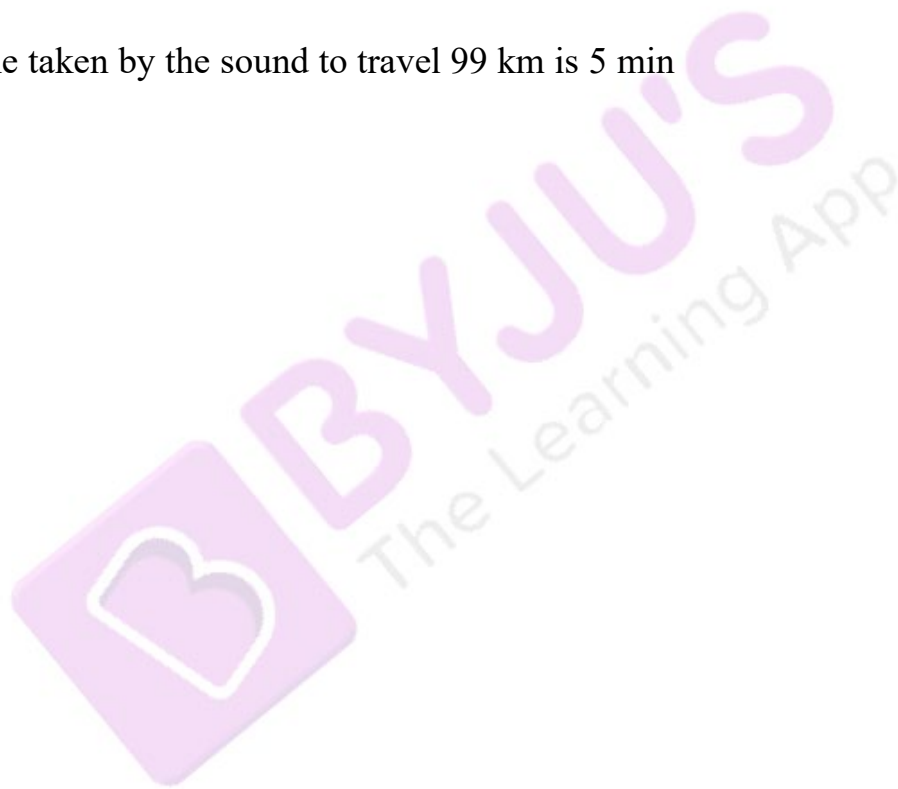
= $9900 / 33 \text{ sec}$

We get,

= 300 sec

= 5 min

Hence, the time taken by the sound to travel 99 km is 5 min



EXERCISE 17(B)

1. A train 180 m long is running at a speed of 90 km/h. How long will it take to pass a railway signal?

Solution:

Given

A train 180 m long is running at a speed of 90 km/h

So, distance = 180 m

Speed = 90 km/h

Hence,

Time = Distance / Speed

= 180 m / 90 km/h

= 180 / (90 × 1000)

= 1 / 500 hours

We get,

= 1 / 500 × 60 × 60 sec

= 36 / 5 sec

We get,

= 7.2 sec

Hence, the train will take 7.2 sec to pass a railway signal

2. A train whose length is 150 m, passes a telegraph pole in 10 sec. Find the speed of the train in km/h.

Solution:

Given

A train whose length is 150 m, passes a telegraph pole in 10 sec

So, distance = 150 m

Time = 10 sec

Hence,

Speed = 150 m / 10 sec

= 15 m/sec

= (15 × 60 × 60) / 1000 km/h

= (15 × 6 × 6) / 10 km/h

= 3 × 3 × 6 km/h

We get,

= 54 km/h

Hence, the speed of train in kilometer per hour is 54 km/h

3. A train 120 m long passes a railway platform 160 m long in 14 sec. How long will it take to pass another platform which is 100 m long?

Solution:

Given

A train 120 m long passes a railway platform 160 m long in 14 seconds

Distance = 120 m + 160 m

= 280 m

Time = 14 sec

Hence,

Speed = Distance / time

= 280 / 14

= 20 m/sec

Hence, the speed of train is 20 m/sec

Now, time taken by the train to pass 100 m platform is as follows

Distance = 120 m + 100 m

= 220 m

Speed = 20 m/sec

Time = 220 m / 20 m/sec

We get,

= 11 sec

Hence, the time taken by the train to pass 100 m platform is 11 sec

4. Mr. Amit can walk 8 km in 1 hour 20 minutes.

(a) How far does he go in:

(i) 10 minutes?

(ii) 30 seconds?

(b) How long will it take him to walk:

(i) 2500 m?

(ii) 6.5 km?

Solution:

(a) (i)

Given

8 km is covered in 1 hour 20 minutes

Distance = 8 km

Time = 1 hours 20 minutes

= 1 + 20 / 60

= 1 + 1 / 3

We get,

= 4 / 3 hours

Hence,

Speed = 8 km / (4 / 3) hours

$$\text{Speed} = (8 \times 3) / 4 \text{ km/h}$$

$$\text{Speed} = 2 \times 3 \text{ km/h}$$

$$\text{Speed} = 6 \text{ km/h}$$

Now, distance covered in 10 minutes is as follows

$$\text{Speed} = 6 \text{ km/h}$$

$$\text{Time} = 10 \text{ min}$$

$$= 10 / 60 \text{ hour}$$

$$= 1 / 6 \text{ hour}$$

Hence,

$$\text{Distance} = 6 \times 1 / 6$$

We get,

$$= 1 \text{ km}$$

Therefore, the distance covered by Mr. Amit in 10 min is 1 km

(ii) Given

8 km is covered in 1 hour 20 minutes

So,

$$\text{Distance} = 8 \text{ km}$$

$$\text{Time} = 1 \text{ hour } 20 \text{ minutes}$$

$$= 1 + 20 / 60$$

$$= 1 + 1 / 3$$

We get,

$$= 4 / 3 \text{ hours}$$

Hence,

$$\text{Speed} = 8 \text{ km} / 4 / 3 \text{ hours}$$

$$= (8 \times 3) / 4 \text{ km/h}$$

We get,

$$= 6 \text{ km/h}$$

Now, the distance covered in 30 seconds is as follows

$$\text{Speed} = 6 \text{ km/h}$$

$$\text{Time} = 30 \text{ sec}$$

Hence,

$$\text{Distance} = 6 \times [30 / (60 \times 60)] \text{ km}$$

On further calculation, we get

$$= 1 / (10 \times 2) \text{ km}$$

$$= 1 / 20 \times 1000 \text{ m}$$

$$= 1 / 2 \times 100$$

$$= 50 \text{ m}$$

Therefore, the distance covered by Mr. Amit in 30 seconds is 50 m

(b) (i)

Given

8 km is covered in 1 hour 20 minutes

So,

Distance = 8 km

Time = 1 hours 20 minutes

$$= 1 + 20 / 60$$

We get,

$$= 1 + 1 / 3$$

$$= 4 / 3 \text{ hours}$$

Hence,

$$\text{Speed} = 8 \text{ km} / 4 / 3 \text{ hours}$$

$$= (8 \times 3) / 4 \text{ km/h}$$

$$= (2 \times 3) \text{ km/h}$$

$$= 6 \text{ km/h}$$

Now, time taken by Mr. Amit to walk 2500 m is as follows

Speed = 6 km/h

Distance = 2500 m

$$= 2.5 \text{ km}$$

Hence,

$$\text{Time} = 2.5 / 6 \text{ hour}$$

$$= 25 / (6 \times 10) \text{ hour}$$

On further calculation, we get

$$= 5 / 12 \text{ hour}$$

$$= 5 / 12 \times 60 \text{ min}$$

$$= 5 \times 5 \text{ min}$$

$$= 25 \text{ min}$$

Therefore, the time taken by Mr. Amit to walk 2500 is 25 minutes

(ii)

Given

8 km is covered in 1 hour 20 minutes

So,

Distance = 8 km

Time = 1 hour 20 minutes

$$= 1 + 20 / 60$$

$$= 1 + 1 / 3$$

We get,

$$= 4 / 3 \text{ hours}$$

Hence,

$$\text{Speed} = 8 \text{ km} / 4 / 3 \text{ hours}$$

$$= (8 \times 3) / 4 \text{ km/h}$$

$$= (2 \times 3) \text{ km/h}$$

$$= 6 \text{ km/h}$$

Now, time taken by Mr. Amit to walk 6.5 km is as follows

$$\text{Speed} = 6 \text{ km/h}$$

$$\text{Distance} = 6.5 \text{ km}$$

Hence,

$$\text{Time} = 6.5 / 6 \text{ hour}$$

$$= 65 / 60 \text{ hour}$$

$$= 1 \text{ hour } 5 \text{ minutes}$$

Therefore, the time taken by Mr. Amit to walk 6.5 km is 1 hour 5 min

5. Which is greater: a speed of 45 km/h or a speed of 12.25 m/sec?

How much is the distance travelled by each in 2 seconds?

Solution:

Given

$$\text{First speed} = 45 \text{ km/h}$$

$$\text{Second speed} = 12.25 \text{ m/sec}$$

$$= [(1225 \times 60 \times 60) / (100 \times 1000)] \text{ km/h}$$

$$= (1225 \times 6 \times 6) / 1000 \text{ km/h}$$

On further calculation, we get

$$= (49 \times 6 \times 6) / 40 \text{ km/h}$$

$$= (49 \times 3 \times 3) / 10 \text{ km/h}$$

We get,

$$= 441 / 10 \text{ km/h}$$

$$= 44.1 \text{ km/h}$$

Hence, it is clear that the first speed 45 km/h is greater than the second speed 12.25 m/sec

Now, the distance travelled in 2 seconds at 45 km/h is shown below

$$\text{Speed} = 45 \text{ km/h}$$

$$= (45 \times 1000) / (60 \times 60) \text{ m/sec}$$

We get,

$$= 450 / 36 \text{ m/sec}$$

$$\text{Time} = 2 \text{ sec}$$

Hence,

$$\text{Distance} = 450 / 36 \text{ m/sec} \times 2 \text{ sec}$$

$$= 450 / 18 \text{ m}$$

$$= 25 \text{ m}$$

Now, the distance travelled in 2 seconds at 12.25 m/sec is shown below

$$\text{Speed} = 12.25 \text{ m/sec}$$

$$\text{Time} = 2 \text{ sec}$$

Hence,

$$\begin{aligned}\text{Distance} &= 12.25 \text{ m/sec} \times 2 \text{ sec} \\ &= 24.50 \text{ m}\end{aligned}$$

Therefore, the distance travelled by each in 2 seconds is 25 m and 24.50 m

6. A and B start from the same point and at the same time with speeds 15 km/h and 12 km/h respectively, find the distance between A and B after 6 hours if both move in:

(i) same direction

(ii) the opposite directions.

Solution:

(i) Same direction

Given

$$\text{Speed of A} = 15 \text{ km/h}$$

$$\text{Speed of B} = 12 \text{ km/h}$$

$$\text{Time} = 6 \text{ hours}$$

Hence,

$$\begin{aligned}\text{Distance covered by A} &= 15 \times 6 \\ &= 90 \text{ km}\end{aligned}$$

$$\begin{aligned}\text{Distance covered by B} &= 12 \times 6 \\ &= 72 \text{ km}\end{aligned}$$

Now, the distance between A and B after 6 hours if both move in same direction is calculated as follows

$$\begin{aligned}\text{Distance covered by A} - \text{Distance covered by B} &= 90 \text{ km} - 72 \text{ km} \\ &= 18 \text{ km}\end{aligned}$$

Hence, the distance between A and B after 6 hours if both move in same direction is 18 km

(ii) the opposite direction

Given

$$\text{Speed of A} = 15 \text{ km/h}$$

$$\text{Speed of B} = 12 \text{ km/h}$$

$$\text{Time} = 6 \text{ hours}$$

Hence,

$$\begin{aligned}\text{Distance covered by A} &= 15 \times 6 \\ &= 90 \text{ km}\end{aligned}$$

$$\begin{aligned}\text{Distance covered by B} &= 12 \times 6 \\ &= 72 \text{ km}\end{aligned}$$

Now, the distance between A and B after 6 hours if both move in the opposite directions can be calculated as shown below

$$\begin{aligned}\text{Distance covered by A} + \text{Distance covered by B} &= 90 \text{ km} + 72 \text{ km} \\ &= 162 \text{ km}\end{aligned}$$

Hence, the distance between A and B after 6 hours if both move in the opposite directions is 162 km

7. A and B start from the same place, in the same direction and at the same time with speeds 6 km/h and 2 m/sec respectively. After 5 hours who will be ahead and by how much?

Solution:

Given

$$\text{Speed of A} = 6 \text{ km/h}$$

$$\text{Speed of B} = 2 \text{ m/sec}$$

$$\text{Time} = 5 \text{ hours}$$

Hence,

$$\text{Distance covered by A} = 6 \text{ km/h} \times 5 \text{ hours}$$

We get,

$$= 30 \text{ km}$$

$$\text{Distance covered by B} = 2 \text{ m/sec} \times 5 \text{ hours}$$

$$= 2 \times 5 \times 60 \times 60$$

We get,

$$= 36000 \text{ m}$$

$$= 36 \text{ km}$$

Hence, it is clear that B will be ahead of A

Now, the distance between B and A after 5 hours if both moving in the same direction is calculated as below

$$\text{Distance covered by B} - \text{Distance covered by A} = 36 \text{ km} - 30 \text{ km}$$

$$= 6 \text{ km}$$

Hence, B will be ahead of 6 km from A

8. Mohit covers a certain distance in 6 hours by his scooter at a speed of 40 kmh^{-1} .

(i) Find the time taken by Manjoor to cover the same distance by his car at the speed of 60 kmh^{-1} .

(ii) Find the speed of Joseph, if he takes 8 hrs to complete the same distance

Solution:

(i)

Given

Mohit covers a distance at a speed of 40 km/h in 6 hours by his scooter

So,

Speed of scooter = 40 km/h

Time taken by scooter = 6 hours

Hence,

Distance = 40×6

We get,

= 240 km

Now, the time taken by Manjoor to cover 240 km by his car at the speed of 60 km/h is calculated as below

Time = $240 / 60$

We get,

= 4 hours

Hence, the time taken by Manjoor to cover 240 km by his car at the speed of 60 km/h is 4 hours

(ii)

Given

Mohit covers a distance at a speed of 40 km/h in 6 hours by his scooter

So,

Speed of scooter = 40 km/h

Time taken by scooter = 6 hours

Hence,

Distance = 40×6

= 240 km

Now, the speed of Joseph to cover 240 km in 8 hours can be calculated as below

Speed = $240 / 8$

= 30 km/h

Hence, the speed of Joseph to cover 240 km in 8 hours is 30 km/h

9. A boy swims 200 m in still water and then returns back to the point of start in total 10 minutes. Find the speed of his swim in

(i) ms^{-1}

(ii) kmh^{-1}

Solution:

(i) m/sec

Given

A boy swims 200 m in still water and then returns back to the starting point in total 10 minutes

So,

Distance = 200 m + 200 m

$$= 400 \text{ m}$$

$$\text{Time} = 10 \text{ minutes}$$

Hence,

$$\text{Speed} = 400 / 10$$

We get,

$$= 40 \text{ m/min}$$

Converting into seconds, we get

$$= 40 / 60 \text{ m/sec}$$

$$= 2 / 3 \text{ m/sec}$$

Therefore, the speed of the boy swim in meter per second is $2 / 3 \text{ m/sec}$

(ii) km/h

Given

A boy swims 200 m in still water and then returns back to the starting point in total 10 minutes

So,

$$\text{Distance} = 200 \text{ m} + 200 \text{ m}$$

$$= 400 \text{ m}$$

$$\text{Time} = 10 \text{ minutes}$$

Hence,

$$\text{Speed} = 400 / 10$$

$$= 40 \text{ m/min}$$

Now, converting into km/h, we get

$$= (40 \times 60) / 1000 \text{ km/h}$$

We get,

$$= 24 / 10 \text{ km/h}$$

$$= 2.4 \text{ km/h}$$

Therefore, the speed of the boy swim in kilometer per hour is 2.4 km/h

10. A distance of 14.4 km is covered in 2 hours 40 minutes. Find the speed in ms^{-1} . With this speed Sakshi goes to her school, 240 m away from her house and then returns back. How much time, in all, will Sakshi take?

Solution:

Given

A distance of 14.4 km is covered in 2 hours 40 minutes

So,

$$\text{Distance} = 14.4 \text{ km}$$

Converting into metre, we get

$$= 14.4 \times 1000 \text{ m}$$

$$= 14400 \text{ m}$$

Time = 2 hours 40 minutes

Converting into seconds, we get

= 160 minutes

= 160×60 seconds

We get,

= 9600 seconds

Hence,

Speed = $(14400 / 9600)$ m/sec

= $144 / 96$ m/sec

We get,

= $3 / 2$ m/sec

= 1.5 m/sec

Hence, the speed in meter per second is 1.5 m/sec

Now, time taken by Sakshi to cover the distance to go to her school, 240 m away from her house and then return back is calculated as below

Distance = $240 \text{ m} + 240 \text{ m}$

= 480 m

Speed = 1.5 m/sec

Hence,

Time = $480 / 1.5$ sec

= $4800 / 15$ sec

We get,

= 320 sec

= 5 min 20 sec

Hence, Sakshi will take 5 minutes 20 seconds to go to her school and then return back