SDT

11 September 2019 10:44

T&T2 12.3 Speed -...

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Section 12.3 Speed – Distance – Time

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Example 1

A train travels a journey of 210 km in $2\frac{1}{2}$ hours. Find its average speed.

Example 2

A motorist travelled 500 kilometres in six hours.
Her average speed for the first two hours was 100 km/hr.
Find her average speed in kilometres per hour for the last four hours.

H/w Q1-4

Exercise 12.3

1. How far will a car travel

(i) in 3 hours at an average speed of 75 km/hr

(ii) in $2\frac{1}{4}$ hours at an average speed of 88 km/hr?

2. Find the time taken to travel

(i) 200 km at an average speed of 80 km/hr

(ii) 48 km at an average speed of 64 km/hr.

3. Find the average speed, in km/hr, of a car if it does

(i) 120 km in 2 hours

(ii) 90 km in $1\frac{1}{2}$ hours

(iii) 25 km in 30 minutes

(iv) 90 km in $\bar{40}$ minutes.

4. A racing car completes a 15 km lap of a track in 5 minutes. Express this speed in km/hr.

5. A speedboat travels at 60 km/hr for two hours and then at 90 km/hr for one hour. Find its average speed over the three hours.

6. A journey takes 3 hours at an average speed of 120 km/hr.
How long, in hours, will the journey take if the average speed is reduced to 80 km/hr?

7. A journey of 276 km began at 1040 hrs and ended on the same day at 1430 hrs. Find the average speed in km/hr.

8. It takes 4 hours and 20 minutes to travel a journey at an average speed of 120 km/hr. How many hours and minutes will it take to travel the same journey if the average speed is reduced to 100 km/hr?

9. A motorist travelled 320 km in five hours.
Her average speed for the first 160 km was 80 km/hr.
What was her average speed for the second 160 km?

10. A distance of 18 km is travelled in 25 minutes.
Find the average speed in metres per second.

11. A cyclist started a journey of 56 km at 1015 hours and finished the journey at 1135 hours. Calculate the average speed of the cyclist in km/hr.

12. A distance of 600 metres is travelled in 30 seconds.
Find the average speed in km/hr.

13. A car journey of 559 kilometres took 6 hours and 30 minutes.

(i) Calculate the average speed, in km/hr, for the journey.

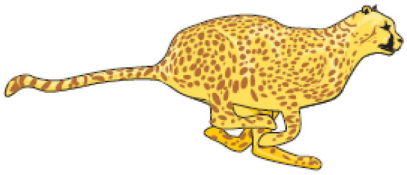
(ii) If the average petrol consumption for the journey was 8.3 km per litre, calculate the number of litres used, correct to the nearest litre.

14. A runner sets out at midday to run to the next village, a distance of 12 km.
She wants to arrive at this village at 1330 hours.
At what average speed should she run?

15. A cheetah can run 100 m in 5.4 seconds.
A train takes 12 minutes to travel 7.7 km between two stations.
Which has the faster average speed, the train or the cheetah?
Express the difference in metres per minute.

16. Anne walks a distance of 1.7 km to school from home.
She walks at an average speed of 5.1 km/hr.
What is the latest she can leave home to be in school at 8.55 a.m.?

17. The table on the right shows the times taken by some very fast animals to travel the distances given.
Arrange the animals in order, starting with the fastest.



Animal	Time taken	Distance in metres
Cheetah	18 seconds	500 m
Racehorse	16 seconds	300 m
Antelope	$4\frac{1}{2}$ min	6 000 m
Deer	42 min	32 000 m

18. A train is scheduled to make a journey of 300 km at an average speed of 120 km/hr. It leaves six minutes late and its average speed is increased so that it arrives on time. Find the new average speed.

19. Barbara's rule for mountain walkers is:

Allow 1 hour for every 5 km you must walk.
Add $\frac{1}{2}$ hour for every 300 metres you must climb.

Jasmine started a 4 km walk at 0800 hours.
The path climbed 1800 m from start to finish.
Jasmine wanted to work out at about what time she would finish the walk.
If she allows $2\frac{1}{2}$ hours for stops along the way, at about what time should she arrive?

Answers

Exercise 12.3

1. (i) 225 km (ii) 198 km

2. (i) 2 hr 30 min (ii) $\frac{3}{4}$ hr

3. (i) 60 km/hr (ii) 60 km/hr
(iii) 50 km/hr (iv) 135 km/hr

4. 180 km/hr **5.** 70 km/hr

6. $4\frac{1}{2}$ hours **7.** 72 km/hr

8. 5 hr 12 min **9.** $53\frac{1}{3}$ km/hr

10. 12 m/sec **11.** 42 km/hr

12. 72 km/hr

13. (i) 86 km/hr (ii) 67 ℓ

14. 8 km/hr

15. Cheetah is faster; 469.4 m/min

16. 8.35 am

17. Cheetah, Antelope, Racehorse, Deer

18. 125 km/hr

19. 14 : 18 hours