S3 NAT 5 Applications **Numeracy Revision** Week Beginning 25 May 2020

Speed Distance Time ANSWERS

Distance = Speed X Time or more simply **D = S X T**

Example .

A car travels at 50km/hr.

How far does it travel in 3 hours ?

Answers :

D = S X T = 50 X 3 = 150km

1 In the same way, find the distance travelled when :

(a) S = 9km/hr T = 2hr 18km

(b) S = 20km/hr T = 5hr 100km

(c) S = 90km/hr T = 3hr 270km

(d) S = 220km/hr T = 5hr 1100km

Common fractions of an hour in decimal form are :

1/4hr = 0.25hr 1/2hr = 0.5 3/4hr = 0.75hr

Example .

Find the distance covered by a bus travelling at a speed of 60km/hr for $1\frac{3}{4}$hr

Answer :

3/4hr = 0.75hr So $1\frac{3}{4}$hr = 1.75hr

D = S X T = 60 X 1.75 = 105km

2 In the same way, find the distance travelled in the following :

(a) S = 84km/hr T = 2 ½ hr 210km

(b) S = 68km/hr T = 1 ¼ hr 85km

(c) S = 92km/hr T = $3\frac{3}{4}$hr 345km

Speed = Distance/Time or more simply S = D/T

Example

Calculate the average speed of a car which travels 400km in 5 hours.

Answer :

S = D/T = 400/5 = 80km/hr

3. In the same way find the speed when :

(a) D = 50miles T = 2hr 25m.p.h

(b) D = 400metres T = 10sec 40m/sec

(c) D = 1800metres T = 60sec 30m/sec

(d) D = 72miles T = 4hr 18m.p.h

Example

A car covers a distance of 45km in 45min.

Find the average speed in km/hr

Answer :

45min = 0.75hr

S = D/T = 45/0.75 = 60km/h

4. Find the average speed in each of the following in km/hr:

(a) D = 50km T = 30min 100km/hr

(b) D = 8km T = 15min 32km/hr

(c) D = 54km T = 45min 72km/hr

TO CHANGE HOURS TO MINUTES MULTIPLY BY 60

TO CHANGE MINUTES TO HOURS DIVIDE BY 60

Example.

Change : (a) 0.8 hours into minutes (b) 24 minutes into hours

Answers : (a) 0.8 min = 0.8 X 60m (b) 24 min = 24/60 hr

= 48min = 0.4hr

5 Change into hours :

(a) 12min (b) 36min (c) 15min (d) 54min (e) 40min (round to 2 dec plc)

0.2hr 0.6hr 0.25hr 0.9hr 0.67hr

6 Change into minutes :

(a) 0.1hr (b) 0.3hr (c) 0.9hr (d) 0.25hr (e) 0.66666hr

6min 18min 54min 15min 40min

Example.

Change 4hours 20 minutes into hours rounding your answer to 2 decimal places.

Answer :

20min = 20/60 hr = 0.33333333.....= 0.33 to 2 decimal places

So 4hours 20 minutes =4.33hr

7 Change into hours :

(a) 2hr 24min (b) 3hr 45min (c) 1hr 12min (d) 5hr 45min

2.4hr 3.75hr 1.2hr 5.75hr

(e) 4hr 36min (f) 7hr 30min (g) 2hr 54min (h) 1 hour 6min

4.6hr 7.5hr 2.9hr 1.1hr

Time = Distance/Speed or more simply T = D/S

Example

A car travelling at 40m.p.h covers a distance of 60 miles.

Find the time taken in (a) hours (b) hours and minutes

Answer:

(a) T = D/S = 60/40 = 1.5hr

(b) T = 1.5hr = 1hr 30min because 0.5hr = 0.5 X 60 = 30min

8 Find the time taken in the following, giving your answers in hours and then hours and minutes ;

(a) a distance of 25 miles at 20mph 1.25hr 1hr 15min

(b) a distance of 350 miles at 200mph 1.75hr 1h r45min

(c) a distance of 180 miles at 80mph 2.25hr 2hr 15min

(d) a distance of 660 miles at 240mph 2.75hr 2hr 45min

9. The distance between two towns is 714km.

A train travels between the towns at an average speed of 140km/hr.

How long does the journey take in hours and minutes ? 5hr 6min

10. A bus leaves Buchanan St Bus Station at 2.35pm .

It reaches Dundee 4.05pm

(a) how long did the journey take ? 1hr 30min

(b) the distance from Glasgow to Dundee is 80miles. 53.3m.p.h

Find the average speed of the bus in m.p.h, rounding your answer to 1 decimal place.

11. A car journey lasted 2hours and 36 minutes.

The average speed was 60km/hr.

How far did the car travel ? 156km

<u>Example.</u>

Gerry travelled a distance of 300 metres in 50 seconds.

(a) what was his speed in metres per second ?

(b) change this speed to km/hr

Answer :

(a) S = D/T = 300/50 = 6m/sec

(b) S = 6m/sec = 360m/min X by 60 to find metres in 1 minute

= 21600mphr X by 60 to find metres in 1 hour

= 21600/1000 km Divide by 1000 to change m to km

= 21.6km/hr

12. Change these speeds from metres per second to kilometres per hour in the same way.

(a) 20m/sec 72000m/sec 72km/hr

(b) 50m/sec 180000m/sec 180km/hr

(c) 120m/sec 432000m/sec 432km/hr

(d) 14.2m/sec 51120m/sec 51.12km/hr

13. Aidan's travelled 70 km at 50km/hr

Johnathan travelled 68km at 56km/hr.

Whose journey took longer and by how many minutes to the nearest minute ?

Aidan took 1.4hr = 1hr 24min

Johnathan took 1.21hr = 1hr 13min

So Aidan's journey took longer by 11min

Mrs McLaughlin

Mr Mailley

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