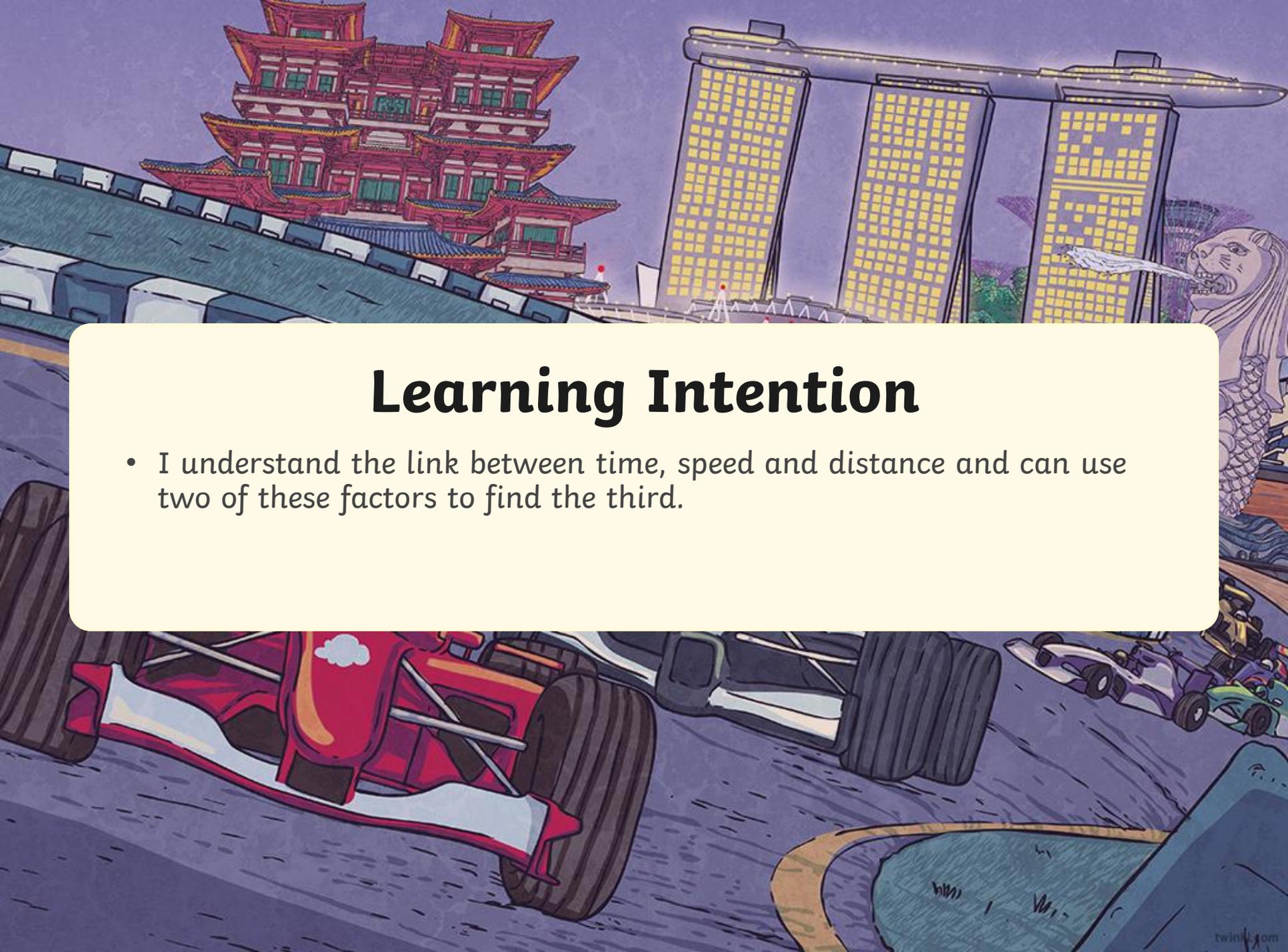




Time, Speed and Distance

twinkl



Learning Intention

- I understand the link between time, speed and distance and can use two of these factors to find the third.

What Are Time, Speed and Distance?

Time is...

Time is how long something takes to happen. This can also be called the duration of an event or journey.

Speed is...

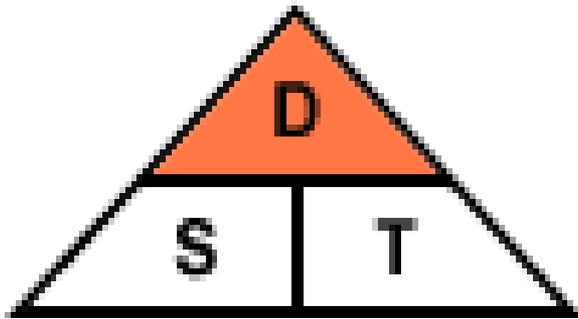
Speed is how fast or slow something travels.

Distance is...

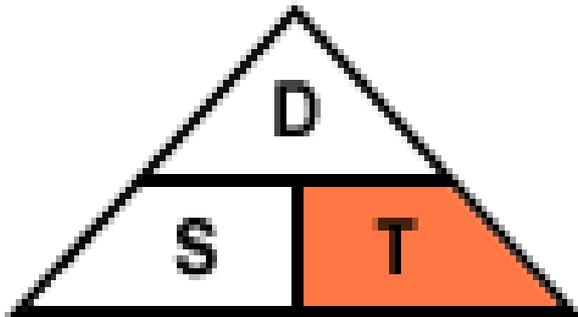
Distance is how far something travels.

How are time, speed and distance linked?

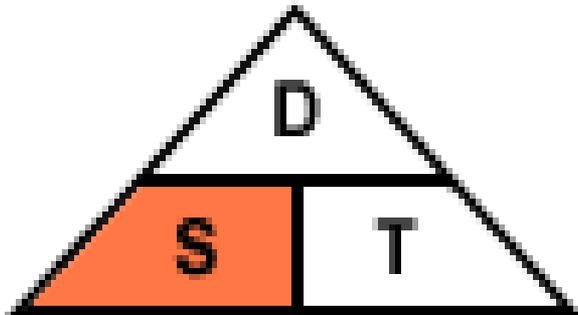
If we know two of these factors, we can work out the third.



Distance = Speed x Time



Time = $\frac{\text{Distance}}{\text{Speed}}$



Speed = $\frac{\text{Distance}}{\text{Time}}$

How to Calculate Distance

If we know the time and speed of a journey, we can work out the distance that has been travelled. To calculate distance (**D**), we multiply time (**T**) by speed (**S**) or speed by time.

For example:

Time (How long did you travel for?) = 1 hour

Speed (How fast did you travel?) = 60km per hour or 60km/h

so

Distance (How far did you travel?) = $1 \times 60\text{km} = 60\text{km}$

Time (How long did you travel for?) = 2 hours

Speed (How fast did you travel?) = 40km per hour or 40km/h

so

Distance (How far did you travel?) = $2 \times 40\text{km} = 80\text{km}$

How to Calculate Distance

A car travels at a speed of 70mph. How far will it travel in 3 hours?

$$D = T \times S = 3 \times 70 = 210 \text{ miles}$$

You walk at 3km/h. How far will you walk in 5 hours?

$$D = T \times S = 5 \times 3 = 15\text{km}$$



How to Calculate Speed

If we know the time and distance of a journey, we can work out the speed. To calculate speed (**S**), we divide distance (**D**) by time (**T**).

For example:

Time (How long did you travel for?) = 1 hour

Distance (How far did you travel?) = 60km

so

Speed (How fast did you travel?) = $60 \div 1 = 60\text{km per hour or } 60\text{km/h}$

Time (How long did you travel for?) = 2 hours

Distance (How far did you travel?) = 80km

so

Speed (How fast did you travel?) = $80 \div 2 = 40\text{ km per hour or } 40\text{ km/h}$

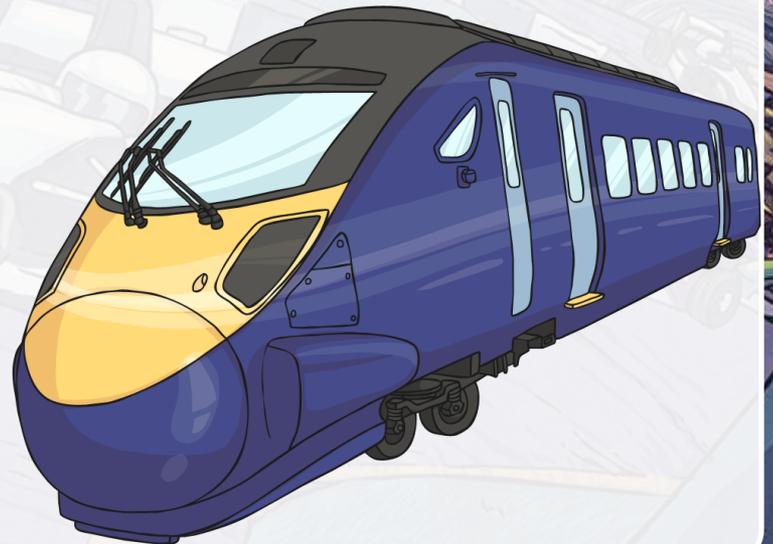
How to Calculate Distance

I walked 16km in 4 hours, what speed was I walking at?

$$S = D \div T = 16 \div 4 = 4\text{km/h}$$

A train travelled 900 miles in 5 hours. What speed was it travelling at?

$$S = D \div T = 900 \div 5 = 180\text{mph}$$



How to Calculate Time

If we know the distance and speed of a journey, we can work out the time. To calculate time (**T**), we divide distance (**D**) by speed (**S**). This can also be shown as: $T = D \div S$

For example:

Distance (How far?) = 60km

Speed (How fast?) = 60km per hour or 60km/h

so

Time (How long?) = $60 \div 60 = 1$ hour

Distance (How far?) = 80km

Speed (How fast?) = 40km/h

so

Time (How long?) = $80 \div 40 = 2$ hours

How to Calculate Time

I walked 20km at a speed of 4km/h. How long did it take me?

$$T = D \div S = 20 \div 4 = 5 \text{ hours}$$

The lorry travelled 600 miles at an average speed of 60mph. What was the total driving time?

$$T = D \div S = 600 \div 60 = 10 \text{ hours}$$



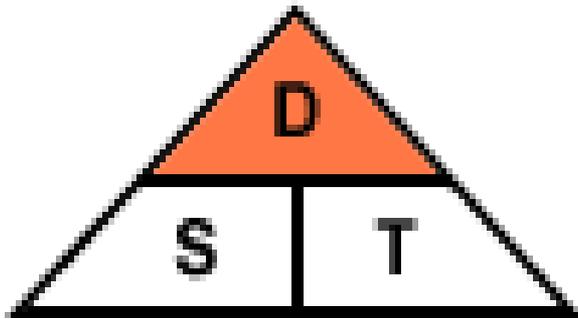
Remember...

To calculate distance (**D**), we multiply time (**T**) by speed (**S**) or speed by time. $D = S \times T$

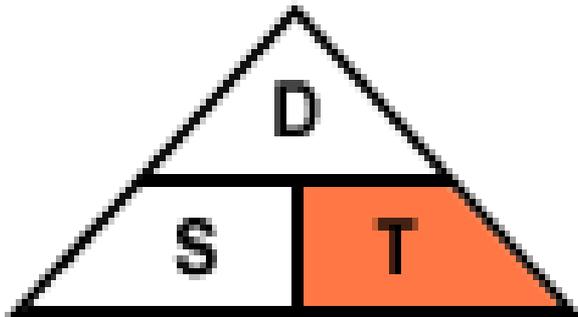
To calculate speed (**S**), we divide distance (**D**) by time (**T**). $S = D \div T$

To calculate time (**T**), we divide distance (**D**) by speed (**S**). $T = D \div S$

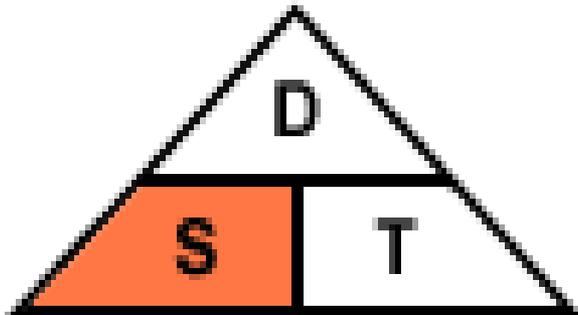




Distance = Speed x Time



Time = $\frac{\text{Distance}}{\text{Speed}}$



Speed = $\frac{\text{Distance}}{\text{Time}}$

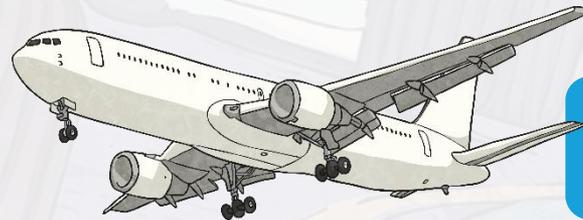
Questions

Can you work out the time, distance or speed for the following?

Charlie walks at 2mph. He walks for 6 hours. How far has he walked?

Amira completes a 10km race in 1 hour. What was her speed?

A plane flies 6000km in 10 hours. How fast was the plane travelling?



Answers

Answers

Charlie walks at 2mph. He walks for 6 hours. How far has he walked?

$$D = S \times T = 2 \times 6 = 12 \text{ miles}$$

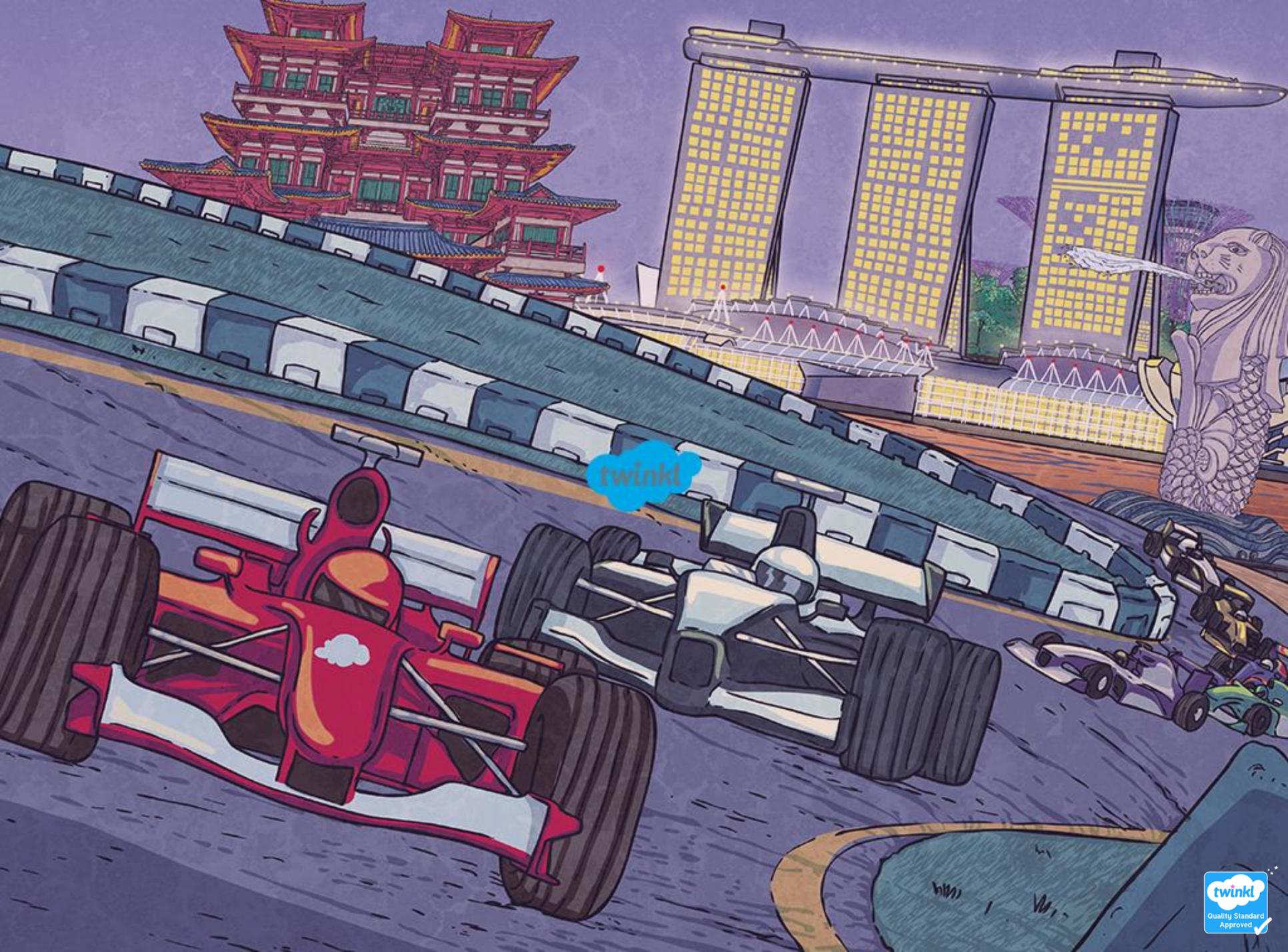
Amira completes a 10km race in 1 hour. What was her speed?

$$S = D \div T = 10 \div 1 = 10\text{km/h}$$

A plane flies 6000km in 10 hours. How fast was the plane travelling?

$$T = D \div S = 6000 \div 10 = 600\text{km/h}$$





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