

Time Distance Speed



Calculating Distance



Calculating Speed



Calculating Time



Time, Distance and Speed Problems



Converting Hour Minutes to Decimal Time



Converting Decimal Time to Hour Minutes



Time - Distance Graphs

Time

Learning Intention

Time.

Success Criteria

1. Convert 12hr to 24hr clock.
2. Convert 24hr to 12hr clock.
3. Count Method to find time intervals.

12/24 Hour Clock

midnight	1 am	2 am	3 am	4 am	5am	6 am	7 am	8 am	9 am	10 am	11 am
0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
midday	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm
1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300

To go from 12 hour clock to 24 hour clock just add 12 to the pm hours:

Examples

8 pm becomes 2000

9 pm becomes 2100

6:30 pm becomes 1830

11:30 pm becomes 2330

4:20 pm becomes 1620

3:10 pm becomes 1510

12/24 Hour Clock

midnight	1 am	2 am	3 am	4 am	5am	6 am	7 am	8 am	9 am	10 am	11 am
0000	0100	0200	0300	0400	0500	0600	0700	0800	0900	1000	1100
midday	1 pm	2 pm	3 pm	4 pm	5 pm	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm
1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300

To go from 24 hour clock to 12 hour clock just subtract 12 from the hours if it is greater than 12:

Examples

2000 becomes 8 pm

2100 becomes 9 pm

1730 becomes 5:30 pm

2208 becomes 10:08 pm

2006 becomes 8:06 pm

1350 becomes 1:50 pm

Counting Method

When working out time difference we will use the **Counting Method**. This method will always work.

Example : Find the time difference between
08 46 hrs and 11 52 hrs

08 46 ⇒ nearest hour 09 00
 09 00 ⇒ hours 11 00
 11 00 ⇒ What's left? 11 52

60 mins = 1hr

3 hrs 6 mins

	Mins
2	14
+ 2	52
<hr/>	
2	66

Counting Method

Example : Find the time difference between
02 37 hrs and 23 49 hrs

02 37 \Rightarrow nearest hour 03 00
03 00 \Rightarrow hours 23 00
23 00 \Rightarrow What's left? 23 49

Hrs	Mins
	23
20	
+	49
<hr/>	
20	72
21hrs 12mins	

Distance

Working Out Distance

Learning Intention

1. To explain how to work out simple distance calculations using the distance formula.

Success Criteria

1. Know the distance formula.
2. Use the formula to work out simple distance calculations.

Distance

Working out Distances

Imagine you were travelling in a train at a steady speed of 80km/hr.

In 1 hour you travel : $80 \times 1 = 80 \text{ km}$

In 2 hours you travel : $80 \times 2 = 160 \text{ km}$

In 3 hours you travel : $80 \times 3 = 240 \text{ km}$

Can you guess what the formula is :

Distance = Speed \times time in symbols $D = S \times T$

Time Distance Speed

Mixed Problems

Example :

A racing car travelled at 50 km/hr.

What is the distance covered in 6 hours 30mins ?

Working

$$\begin{aligned} D &= S \times T \\ &= 50 \times 6.5 \\ &= 325 \text{ km} \end{aligned}$$

Speed

Working Out Speed

Learning Intention

1. To explain how to work out simple speed calculations using the speed formula.

Success Criteria

1. Know the speed formula.
2. Use the formula to work out simple speed calculations.

Speed

Working Out Speed

Imagine you sailed 45 kilometres between two islands and it took 3 hours.

In 3 hours you travel : = 45 km

In 1 hour you travel : $45 \div 3 = 15$ km

This means your speed is : 15km/hr

Can you guess what the formula is :

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

in symbols

$$S = \frac{D}{T}$$

Time Distance Speed

Mixed Problems

Example :

Liam drove from his house to the Fort William, a distance of 315 miles. It took him 3hrs. What was his average speed?

Working

Time Distance Speed

Mixed Problems

Example

How long did the bus journey take if it travelled a total distance of 100 km at and an average speed of 40 km/hr.

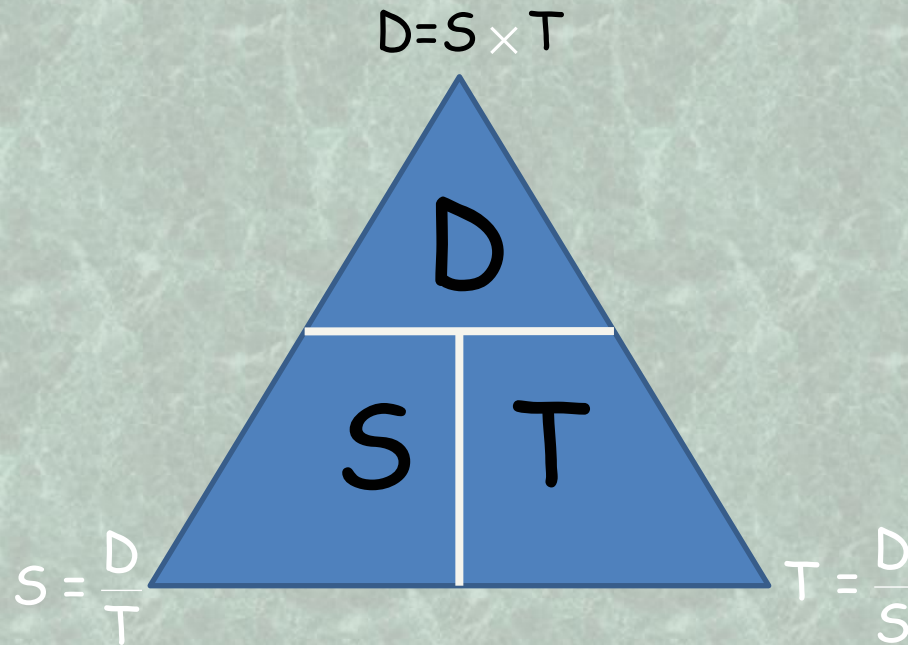
Working

$$T = \frac{D}{S}$$
$$= \frac{100}{40} = 2.5 \text{ hrs}$$

$$T = 2 \text{ hrs } 30 \text{ mins}$$

Time Distance Speed

Mixed Problems



Simple way to remember the 3 formulae !

Time Distance Speed

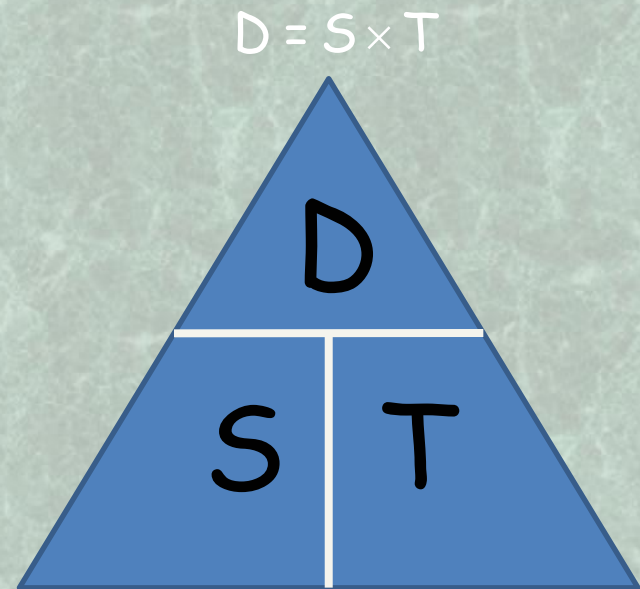
Mixed Problems

Example 2 : A racing car travelled at 50 km/hr.
What is the distance covered in 6 hours ?

Working

$$D = S \times T = 50 \times 6 = 300 \text{ km}$$

$$D = 300 \text{ km}$$



Time Distance Speed

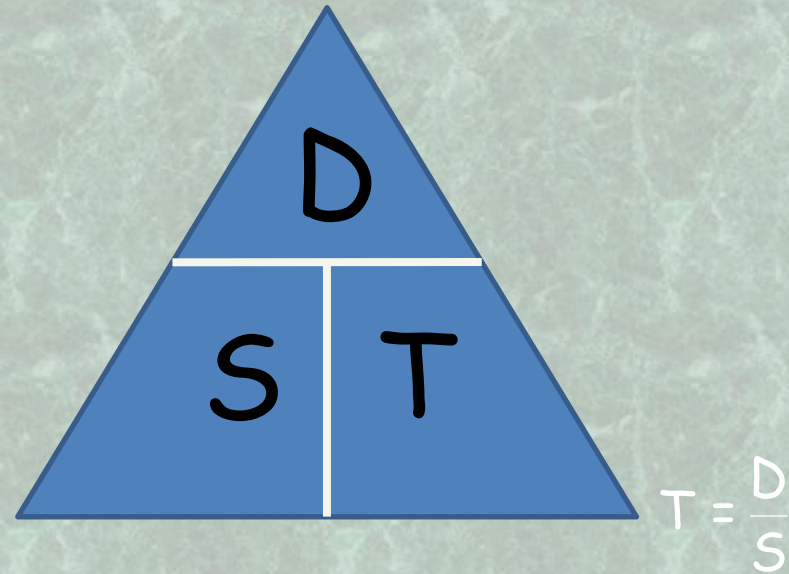
Mixed Problems

Example 1 : How long did the bus journey take if it travelled a total distance of 60 km at an average speed of 40 km/hr.

Working

$$T = \frac{D}{S} = \frac{60 \text{ km}}{40 \text{ km/hr}} = 1.5 \text{ hrs}$$

$$T = 1 \text{ hr } 30 \text{ mins}$$



Hrs Mins to Decimal Time

Converting Hrs Mins to Decimal Time

Learning Intention

1. To show how to convert hours and minutes to decimal time.

Success Criteria

1. Know that decimal time **MUST** be used in formulae.
2. Convert from hours and mins to decimal time.

Hrs Mins to Decimal Time

Converting Hrs Mins to Decimal Time

You should already know :

$$\frac{1}{2} \text{ hour} = 0.5 \text{ hours}$$

$$\frac{1}{4} \text{ hour} = 0.25 \text{ hour}$$

$$\frac{3}{4} \text{ hour} = 0.75 \text{ hour}$$

Example 1 : 48 minutes to decimal is $\frac{48}{60} = 0.8 \text{ hr}$

Example 2 : 2hr 15 minutes to decimal is $2 + \frac{15}{60} = 2.25 \text{ hr}$

To change minutes to a decimal 'divide by 60'

Hrs Mins to Decimal Time

Converting Decimal Time to Hrs Mins

Learning Intention

1. To show how to convert back from decimal time to hours and minutes.

Success Criteria

1. Know the rule for converting back from decimal time to hours and mins.

Hrs Mins to Decimal Time

Converting Decimal Time to Hrs Mins

You should already know :

To change minutes to a decimal time 'divide by 60'

To convert back to and minutes we do the opposite :

To change decimal time to minutes 'multiply by 60'

Hrs Mins to Decimal Time

Converting Decimal Time to Hrs Mins

To change decimal time to minutes 'multiply by 60'

Example 1 : 0.7 hrs to minutes is $0.7 \times 60 = 42$ mins

Example 2 : 3.4 hrs to hours and minutes is

$$3 + 0.4 \times 60 = 3 \text{ hrs } 24 \text{ mins}$$

Time Distance Graph

Interpreting Time - Distance Graphs

