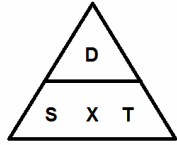# Speed, Distance, Time www.m4ths.com
Task 1 - "Formulae & Calculations"

(1) Using the triangle above, or otherwise, complete the following:

$Distance =$ _____ $\times$ _____
$Speed =$ _____ $\div$ _____
$Time =$ _____ $\div$ _____

Task 2 - Basic SDT Questions
(1) A car travels for 3 hours at 50mph. Find the **distance** it travels.
(2) A lorry travels 100 miles in 4 hours. Find its average **speed**.
(3) Find the **time** it takes a motorbike to travel 30km if it's travelling at 60kph.
(4) Peter drives for 3 and half hours at 40mph. how far did he travel in total?
(5) Find how long it will take Jenny to cover 17.5 miles on foot if she is walking at 2.5mph.
(6) Fred runs 26 miles in 4 and a half hours. Find his average speed for the 26 miles.

Task 3 - Converting Units
(1) Write 15 minutes as a fraction of one hour.
(2) Write 90 minutes in terms of hours.
(3) Write 45 minutes in terms of hours.
(4) Bob travels for 1 hour and 15 minutes. Explain why this is not 1.15 hours and write down how many hours it is as a fraction and mixed number.
(5) (a) Write 12 minutes as a fraction of one hour
(b) Give your answer to (a) as a decimal.
(6) Write 20 minutes, 40 minutes and 1hr 20 minutes as fractions or mixed numbers of 1 hour.

Task 4 – Using fractions and decimals
(1) A car travels at 60mph for 2 hours and 15 minutes. How far does it travel?
(2) A Lorry travels 12 miles in 20 minutes. What is its average speed?
(3) A car travel 60 miles at an average speed of 80mph. How many minutes did the journey take?
(4) Samir travels for 105 minutes at a constant speed of 30mph. How far does he travel?
(5) Jesse covers 4.5 miles in 15 minutes. What is her average speed?

Task 5 - More Wordy Questions.
(1) Karen needs to be at work for 10am. Her workplace is 50 miles away and she can average 40 mph in the car. What is the latest time she can leave home to ensure she makes it on time?
(2) Bob has 3 hours spare and wants to go on a bike ride. He wants to ride a loop of 47 miles. What speed will he have to average to make sure he doesn't exceed 3 hours? Give your answer to 1 decimal place.
(3) Freda needs to be at a party for 1.20pm. She has a drive of 36 miles ahead of her and can average 27mph. Explain clearly why she will need to leave no later than midday.

Task 6 - Multi-step/ Tougher Questions
(1) Fred is travelling from Town A to Town C via Town B. He averages 18mph from Town A to Town B and 40mph from Town B to Town C.
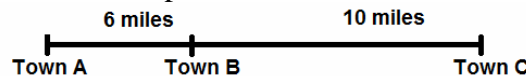
(a) Find out what time Fred will arrive in Town C if he leaves Town A at 11.50am and doesn't stop in Town B.
(b) How much longer would it have taken Fred to get from Town A to Town C if he had travelled at a constant speed of 20mph without stopping?

(2) A train leaves Station A. For the first part of its journey the train averages 85mph. For the second part of its journey the train averages 115mph. The train travels for 4 hours in total. Given that the second part of the journey takes 3 times longer than the first part, find the total distance travelled by the train.

(3) Ann, Bettie and Carol are sisters. They are driving home from work from points A, B and C respectively. Carol travels at 56mph, Bettie at 42mph and Ann at 51mph. If they all leave at the same time from work who will get home first?
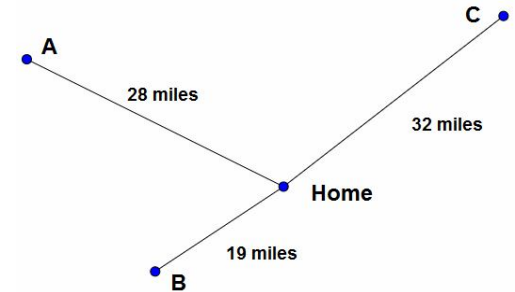
(4) Janet enters a 30mph zone at 09:27. Janet travels seven and a quarter miles before leaving the 30mph zone at 09:42. A week later she gets a speeding ticket in the post. Should she contest it?

Task 7 - Extension Questions
(1) Fred runs 900 meters in 3 minutes and 15 seconds. Find his speed in kph.
(2) Julie drives 24.5km in half an hour. Find her speed in meters per second. You must use the correct notation for meters per second.
(3) Jamie starts running. He accelerates at a constant rate from a standing start to 10 meters per second in 8 seconds. He maintains this speed for a further 4 seconds before slowing and coming to rest in a further 6 seconds. Sketch a speed/time graph to represent Jamie's run and find the distance he travelled using your graph.