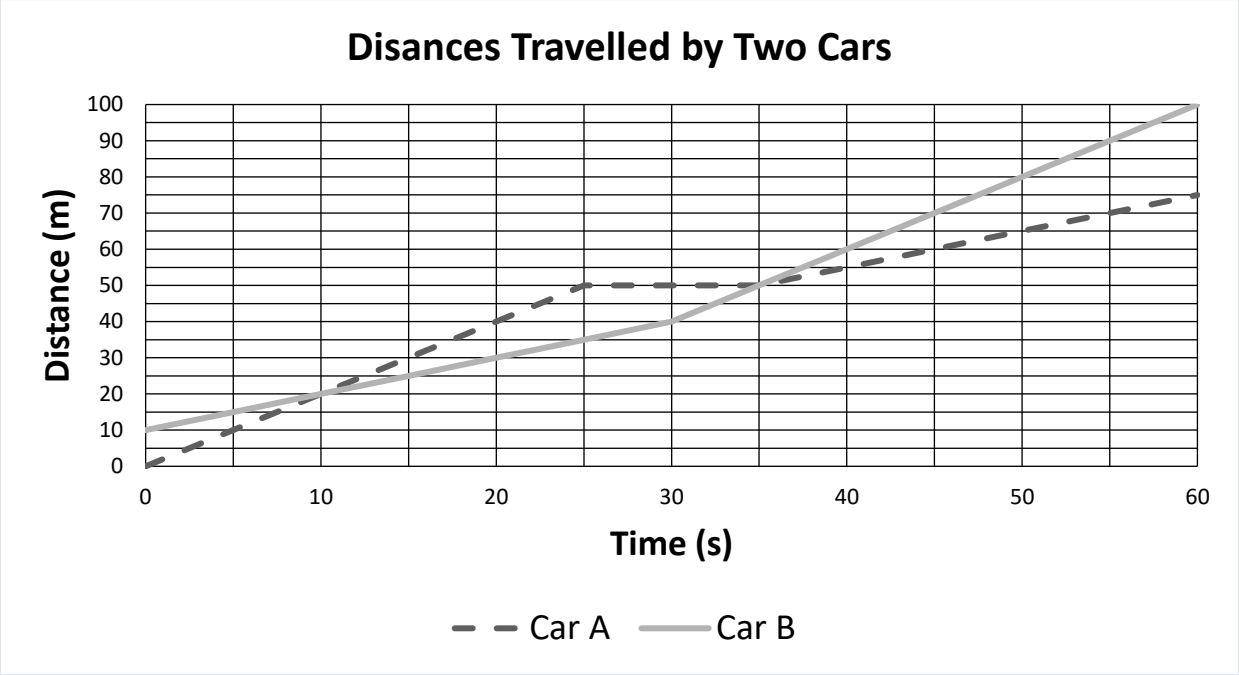
Name: _____ Date: _____

Science 10 – Motion – Distance-Time and Position-Time Graphs

Learning Goals

1. I can analyze a graph to determine characteristics of an object's motion.
2. I can compare the motion of two different objects using a graph.
3. I can create a distance-time graph from a data table.

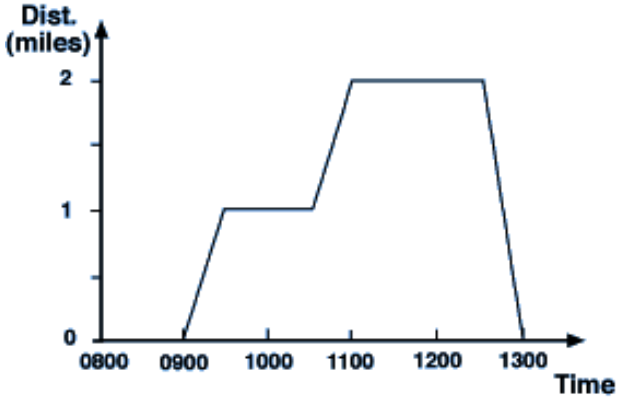
Graph A



1. How fast was Car A travelling for the first part of its journey?
2. How fast was Car B travelling for the second part of its journey?
3. Which car travelled further in one minute? How much further?
4. Which car travelled further in the first 30 seconds? How much further?
5. How long was Car A stopped?
6. What is the average speed of <u>each</u> car in its one-minute journey?

Graph B

The graph shows how Jan's position relative to home varied with time as she walked to her friend's house, bought a magazine in a shop on the way, and walked back home again.



1. How far is it from Jan's house to the shop?
2. How far is it from Jan's house to her friend's?
3. How long did Jan spend in the shop?
4. How long did Jan spend at her friend's?
5. How long did the trip take altogether?

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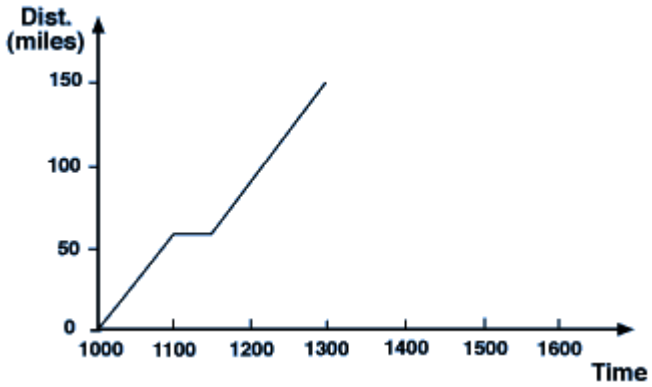
Graph C

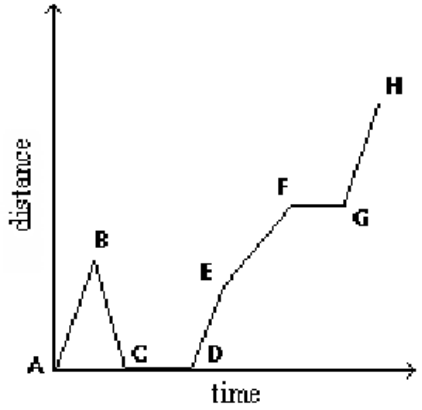
The Smith family are to drive 150 miles to a holiday cottage. They stopped to fill up with gas on the way there. The graph below shows the distance from home against time for their journey.



1. When did they stop for gas and for how long?
2. Calculate their average speed for the journey, <u>not</u> including the time they are stopped.
3. Calculate their average speed including the time they are stopped.
4. Half an hour after they arrive at the cottage they discover that they have left the keys for the cottage at home. Show this time on the graph.
5. The journey home was completed at an average speed of 50 miles/h while on the move. Complete the graph to show the rest of the journey home and state when they arrived home.

Graph D

Explain, in point form, what the position-time graph might be showing in the following situation:
<u>Bobby's Trip Home from the Mall</u>



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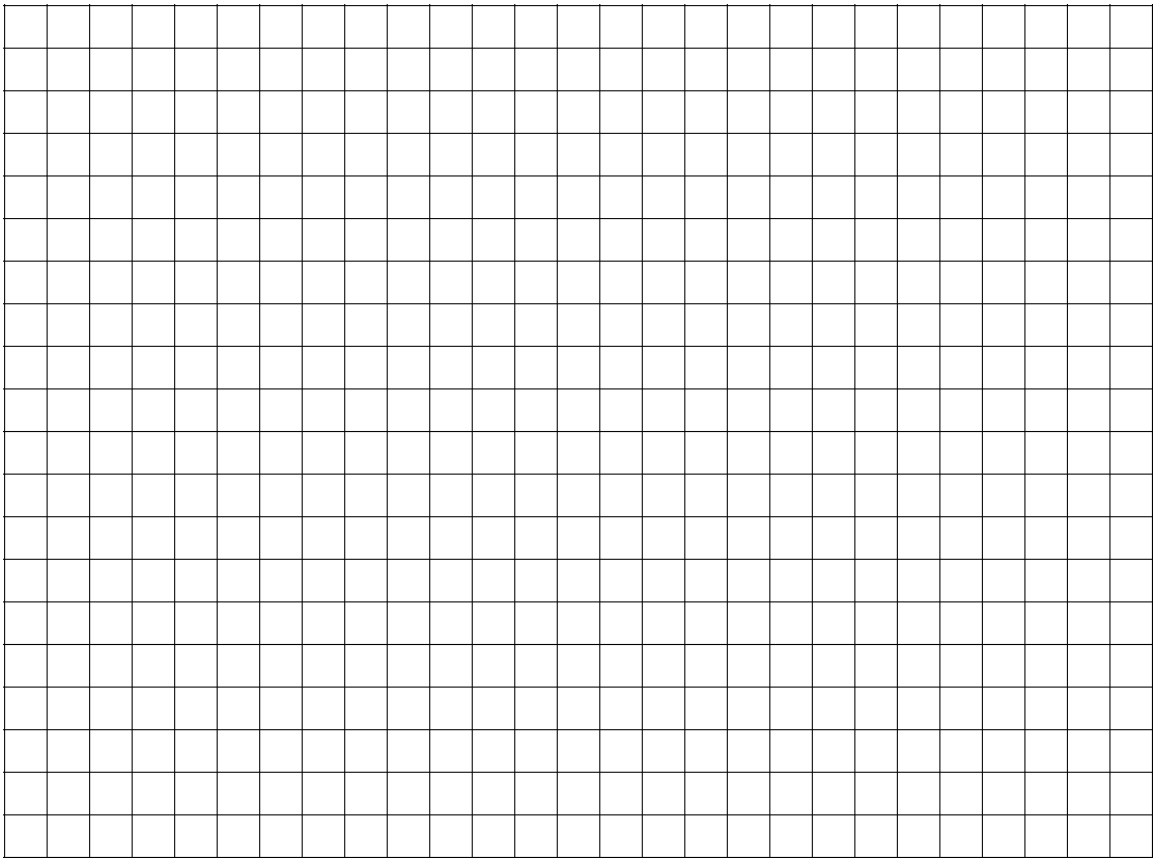
Graph E

Create a distance-time graph using the data below, then answer the questions.

Time (min)	0	10	20	30	40	50	60	70	80	90	100	110	120
Distance (km)	0	10	20	30	30	50	70	75	80	85	85	95	105



1. How many times did the car change speed?
2. Determine the average speed for each section of the trip.
3. What is the average speed of the car in the first 60 minutes?
4. What is the average speed of the car in the whole trip?
5. What is the furthest the car got from its original location?
6. How long was the car stopped?