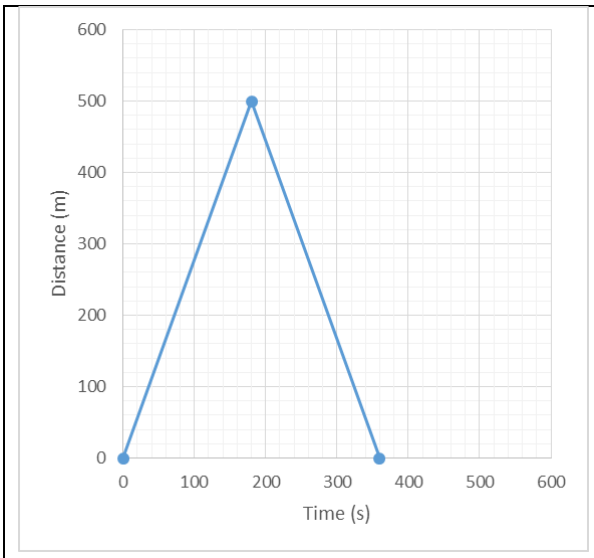
HW 1.2 - Graphing Motion Name .....

1. Kate walked to school and then turned around and walked back home as she had forgotten to bring her physics homework. She spent 1 min at the house finding it and then ran back to school at twice her walking speed. The graph below is INCOMPLETE.

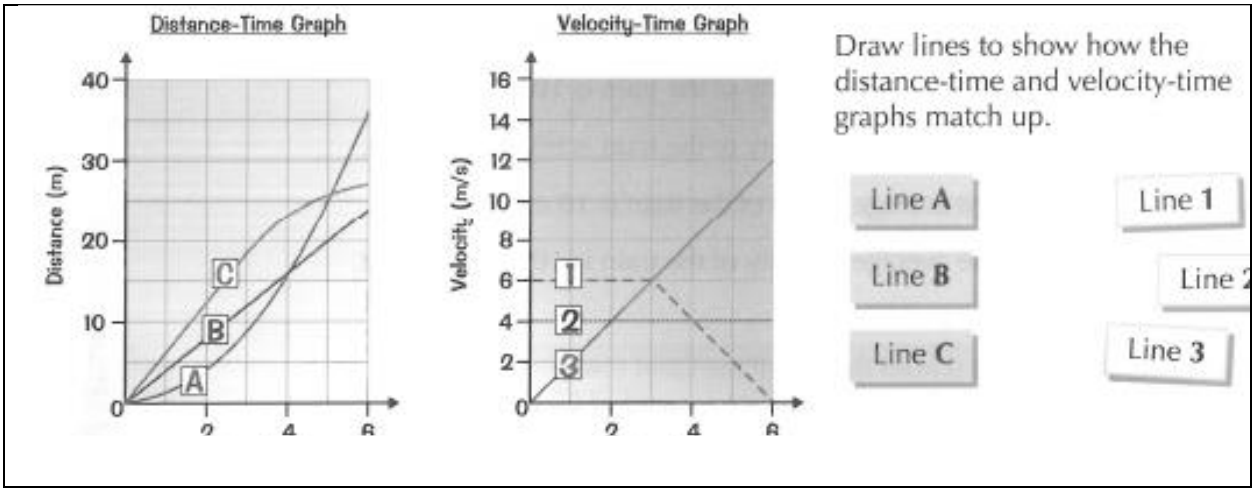


a) How long did it take Kate to walk to school? (1)

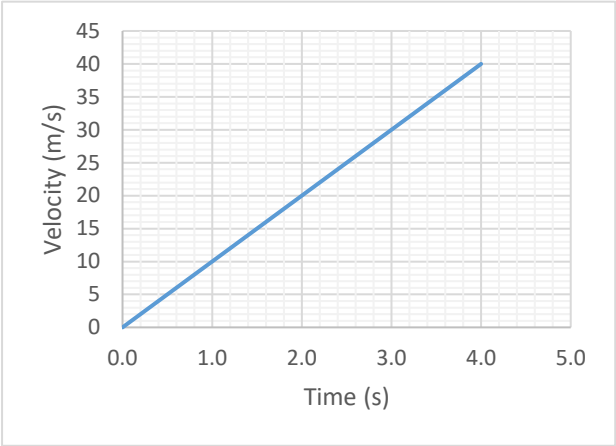
b) Calculate Kate's speed as she walked. (3)

c) Complete the distance-time graph (2)

2. The distance-time and velocity-time graphs below both show the same journeys. (2)



3. The velocity-time graph for an object is shown below



a) What is the acceleration of the object? (3)

b) How far did the object travel in 4.0 seconds? (3)

c) How far did the object travel in the time interval 2.0 s → 4.0 s? (3)

4. The velocity-time graph on the right shows the journeys of three different cyclists. (5)

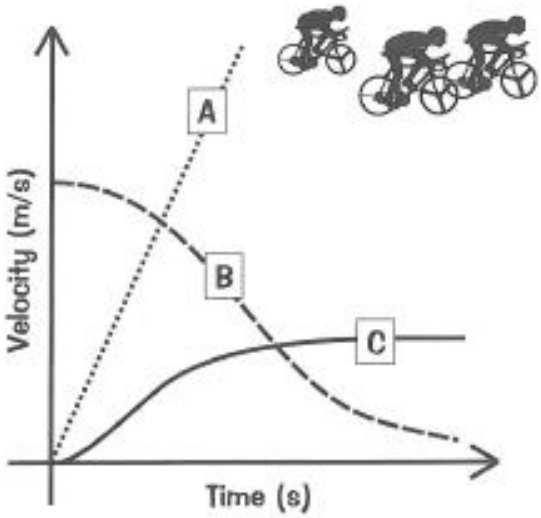
a) Which cyclist is decelerating>

b) Which reaches a constant velocity?

c) Which has the largest acceleration?

d) Which has the lowest final velocity?

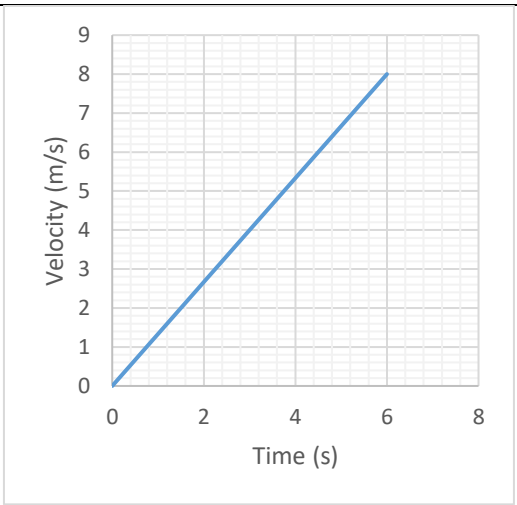
e) Which has constant acceleration?



5. A graph showing the motion of a descending lunar lander is shown below. It is accelerating due to the Moon's gravity.

a) Calculate the acceleration of the lunar lander. (3)

b) Calculate the distance travelled by the lander over the 5 seconds of the final descent that is shown on the graph. (3)



6. A truck driver sees a kitten on the road 25 m in front of him. It takes 0.75 seconds to react and then slam on the brakes. The velocity-time graph shows the car's motion. The rather daft kitten doesn't move. Use the graph to determine whether it was squashed by the truck. Show your working. (3)