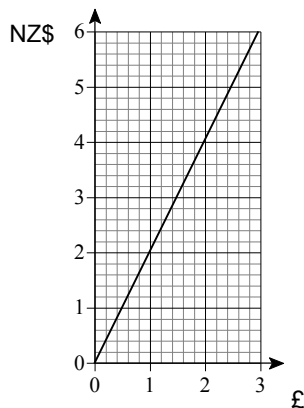


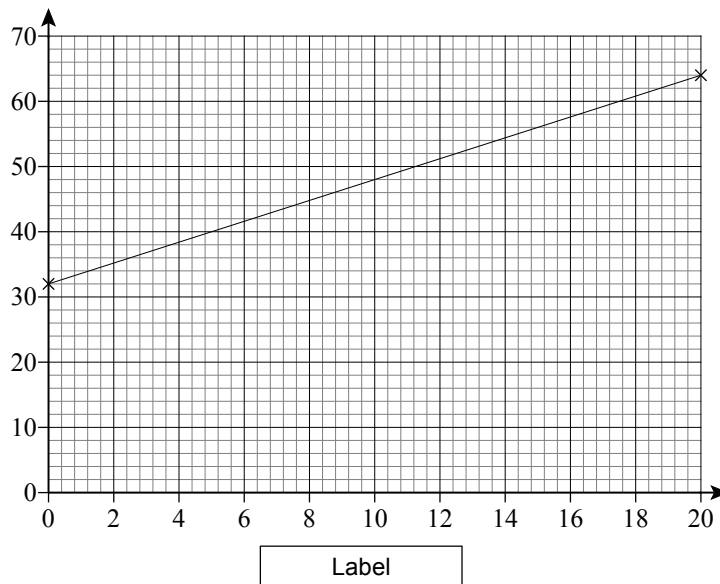
## Topic Check In - 7.04 Interpreting graphs

1. Shipra draws a distance-time graph of her journey to school.  
At one point on the journey she waits for a bus.  
How will this be shown on the graph?
2. This is part of a graph to change between New Zealand Dollars (NZ\$) and Pounds (£).  
Use the graph to help convert 30 New Zealand Dollars (NZ\$) into Pounds (£).



3. This is part of a graph to change between degrees Celsius and degrees Fahrenheit.

Water freezes at  $0^{\circ}\text{C}$  and also at  $32^{\circ}\text{F}$ .  
Write down the label for the horizontal axis.



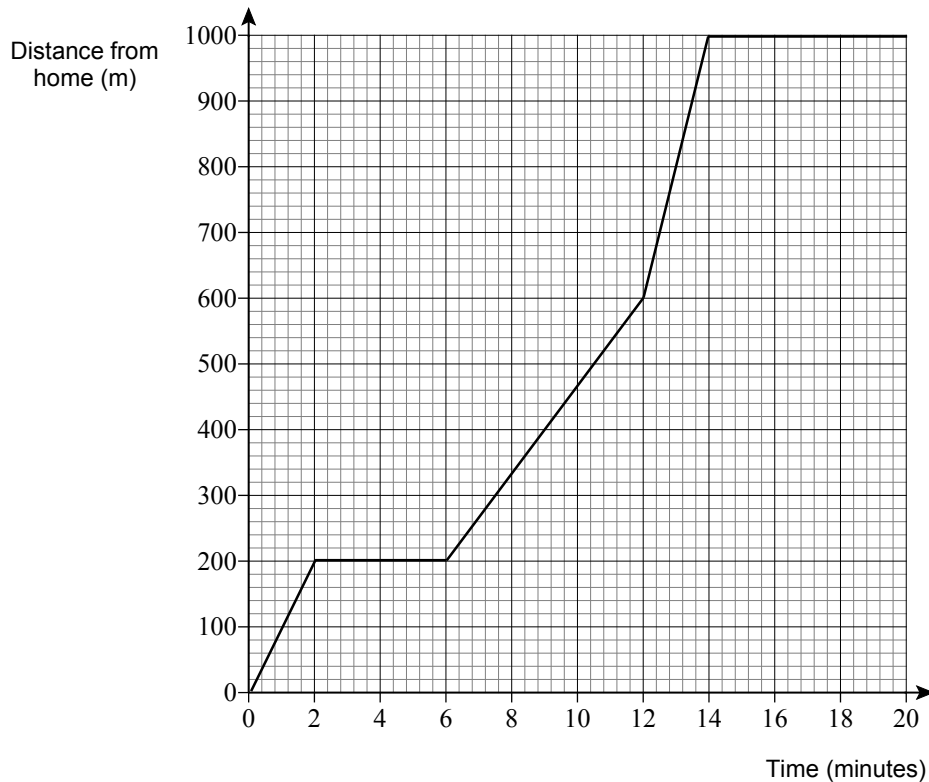
4. Use the graph in question 3 to change  $8^{\circ}\text{C}$  to degrees Fahrenheit.



5. The distance-time graph shows Pete's journey from home to the shops.

Pete set out from home at 10:15.

Write down the time he reached the shops.



6. Look at the graph in question 5.

Alan says,

“In stage three, from 6 minutes to 12 minutes, Pete has covered 600 metres.

This makes his speed in this stage

600 metres in 6 minutes or

100 metres in 1 minute.

So,  $100 \times 60 = 6000$  metres in 1 hour or 6 km/h.”

What mistake has Alan made when calculating Pete's speed?

7. Juan travels at a constant speed of 36 km/h.  
Explain why both of the graphs in Appendix A could be used to correctly represent his journey.
8. Zaria and Sara keep a record of the amount of money in their bank accounts.  
They each plot a graph to show the total amount against time.  
Describe the graph that would show Zaria is saving more money each week than Sara.



# GCSE (9–1) MATHEMATICS

- Use the conversion information given in the graph from question 2, and the fact that the exchange rate is 180 Japanese Yen (JPY) to £1 to plot a conversion graph for changing Japanese Yen (JPY) into New Zealand Dollars (NZ\$).
- Edward, the electrician, calculates a bill as  $\pounds m$  per hour worked plus a  $\pounds C$  fixed call out charge. Find the cost of 7 hours of work if he charges £110 for 2 hours of work and £200 for 5 hours of work.

## Extension

Sketch a graph to show the amount of energy used in a house throughout a year.



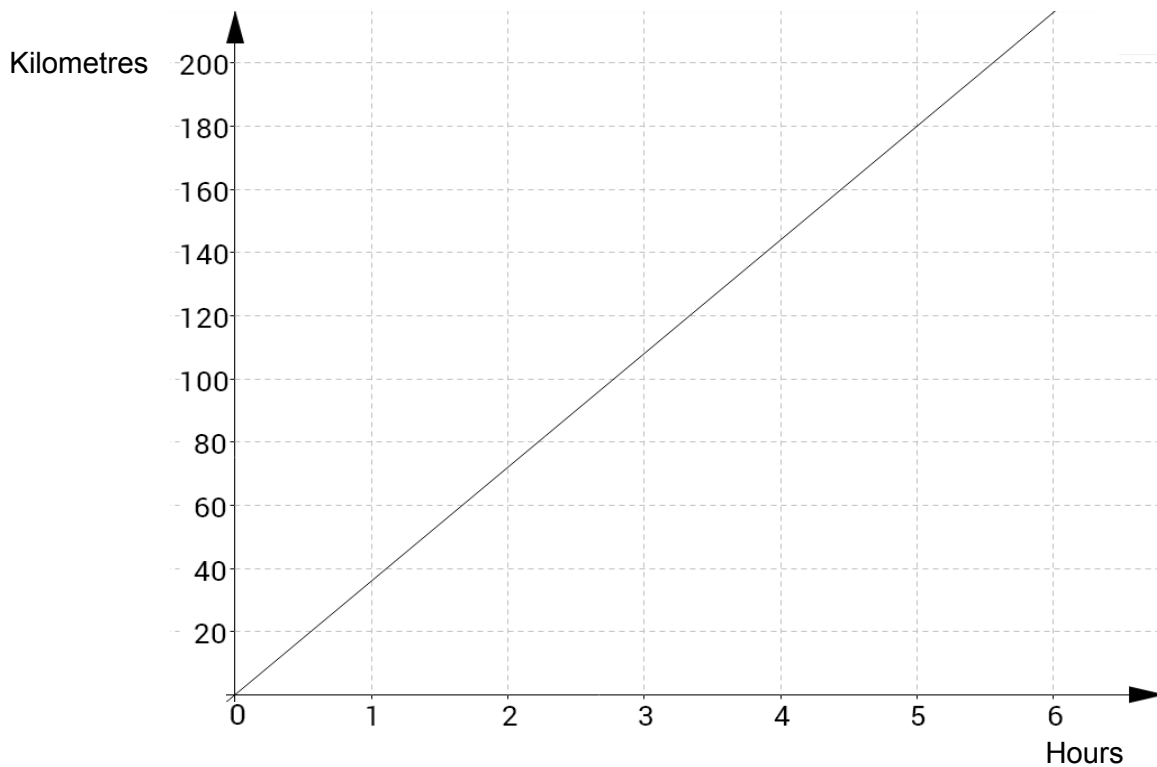
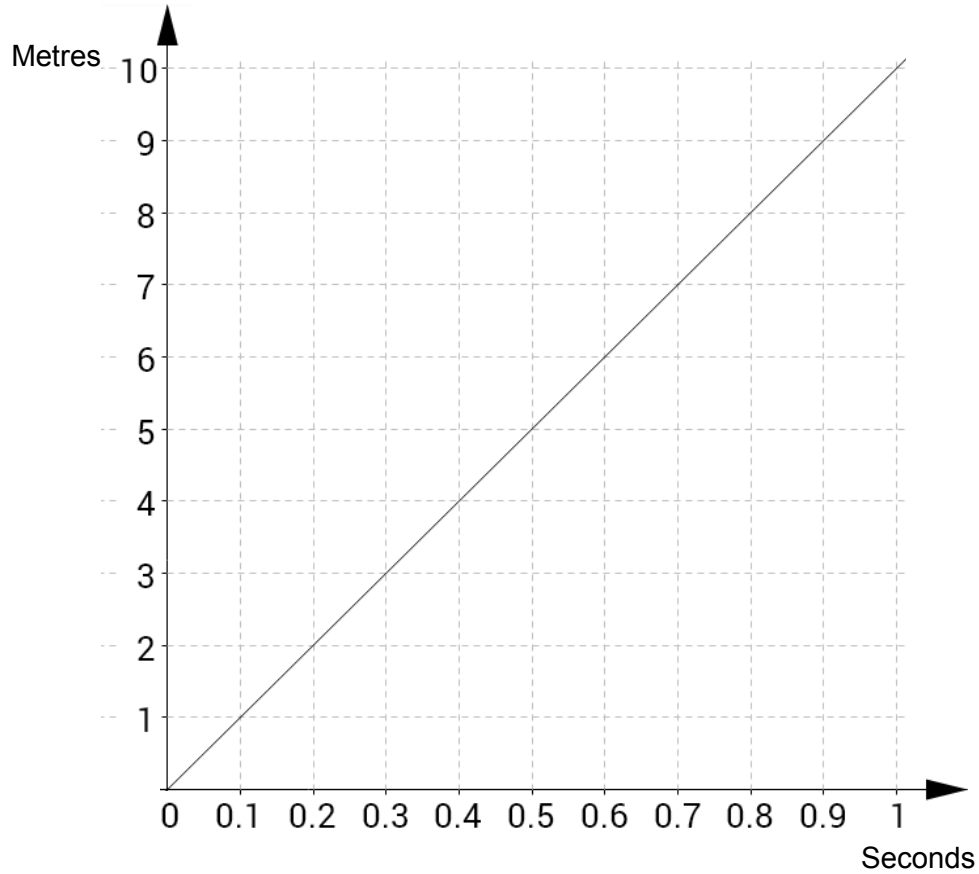
Label the horizontal axis.  
Explain what is happening in four parts of your graph.



# GCSE (9-1) MATHEMATICS

## Appendix A

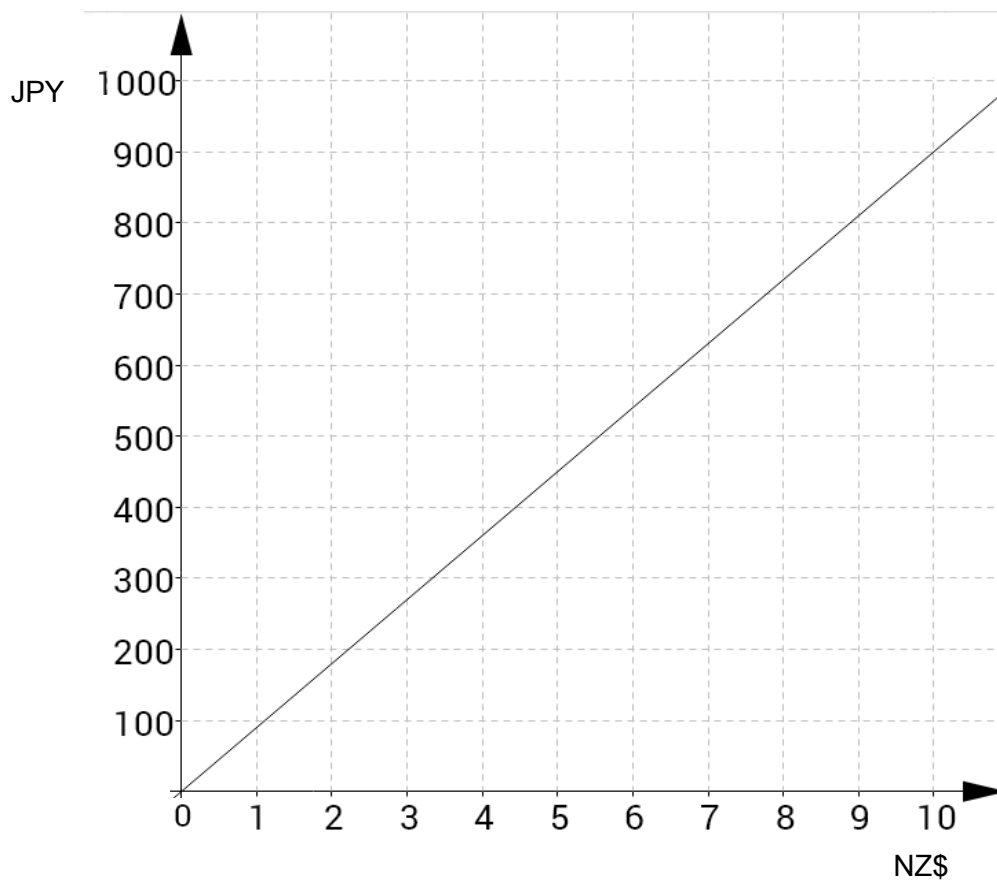
Graphs for use with Question 7.



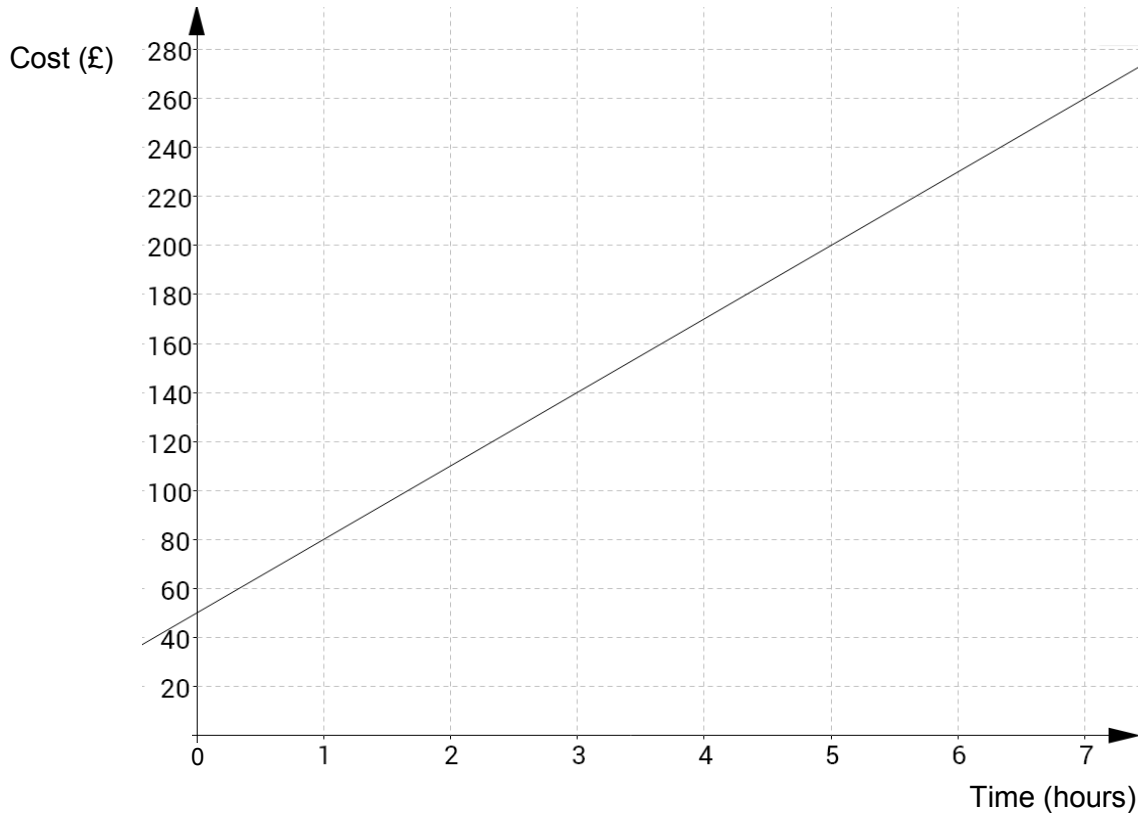
# GCSE (9-1) MATHEMATICS

## Answers

1. Horizontal line
2. 30 NZ\$ = £15
3. [Temperature] °C
4. 44 to 46°C
5. 10:29
6. In stage 3 he only travelled 400 m (in 6 minutes). [His speed was 4 km/h.]
7. First graph shows 10 m in 1 second which is the same as  $(10 \times 60 \times 60)/1000 = 36$  km/h.  
Second graph shows 180 km in 5 hours which is  $180/5 = 36$  km/h.
8. Zaria's graph has a steeper gradient.
9. Linear axis with graph line clearly passing through (2, 180).

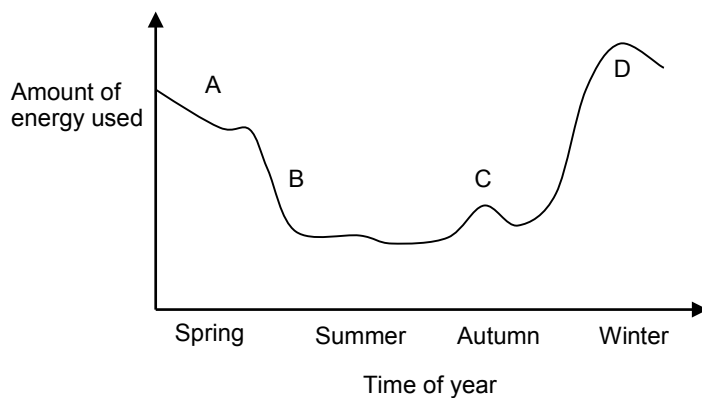


10. Reading from their graph, 7 hours work will cost £260.



## Extension

An example could be:



A. In spring it's getting warmer and less energy is used to heat the house.

B. Much lighter, fewer lights used and the heating is switched off.

C. A cold snap in autumn means the heating is turned on early.

D. Lots of energy is used to heat and cook during the cold season.



# GCSE (9-1) MATHEMATICS



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Assessment Objective	Qu.	Topic	R	A	G
AO1	1	Interpret the gradient of a distance-time graph.			
AO1	2	Extrapolate values from a conversion graph.			
AO1	3	Correctly label an axis on a conversion graph.			
AO1	4	Use a temperature conversion graph.			
AO1	5	Read from a distance-time graph.			
AO2	6	Interpret a distance-time graph.			
AO2	7	Consider the units in a distance-time graph.			
AO2	8	Interpret the gradient of a graph in a real-world context.			
AO3	9	Use information to plot a currency conversion graph.			
AO3	10	Plot a graph from data in a real-world context.			

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