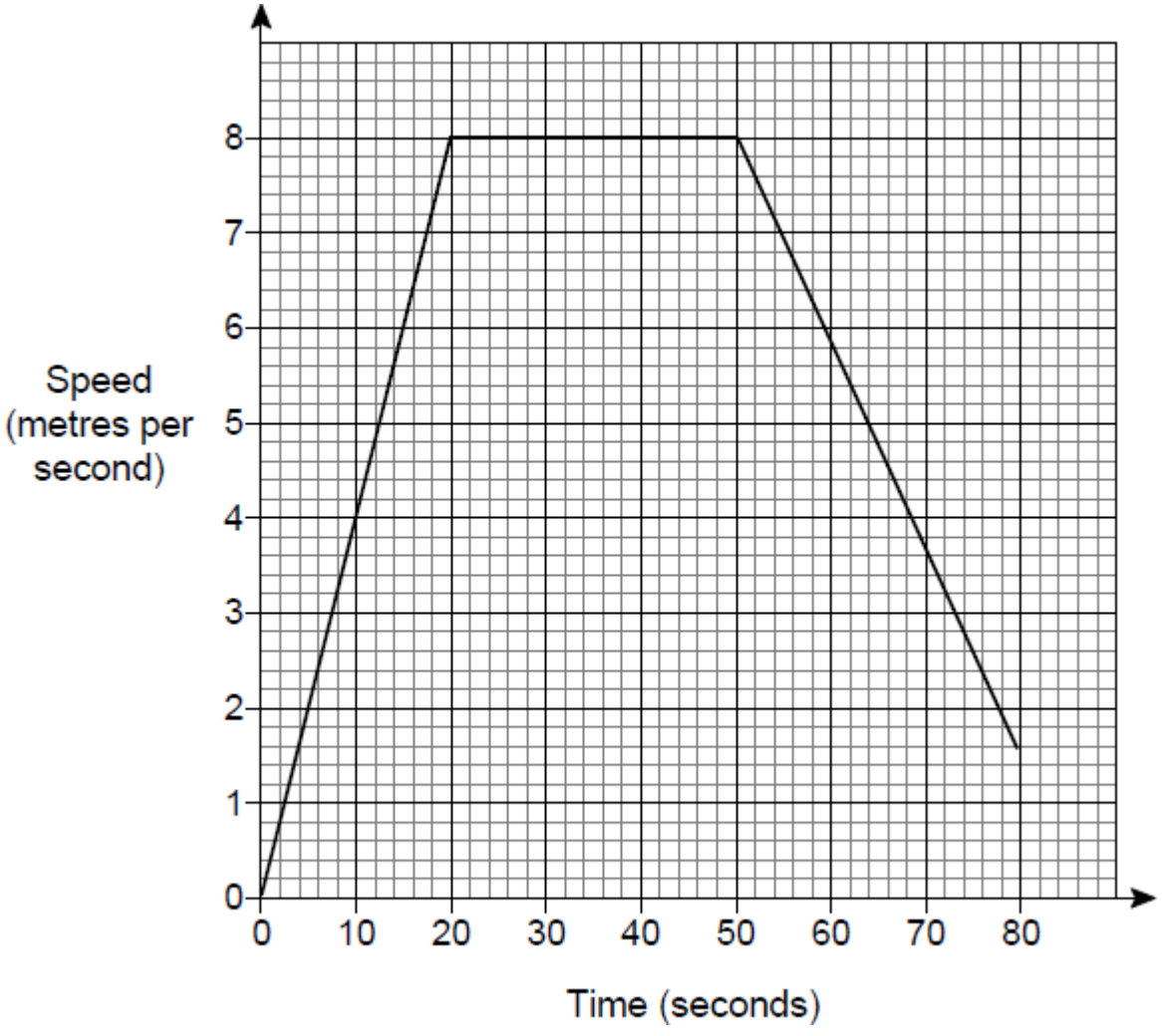
Q1.

Amina and Ben had a cycle race.

Here is Amina's speed-time graph from the start of the race.



The distance of the race was 400 metres.

Ben cycled the 400 metres in 64 seconds.

Who won the race?

You **must** show your working.

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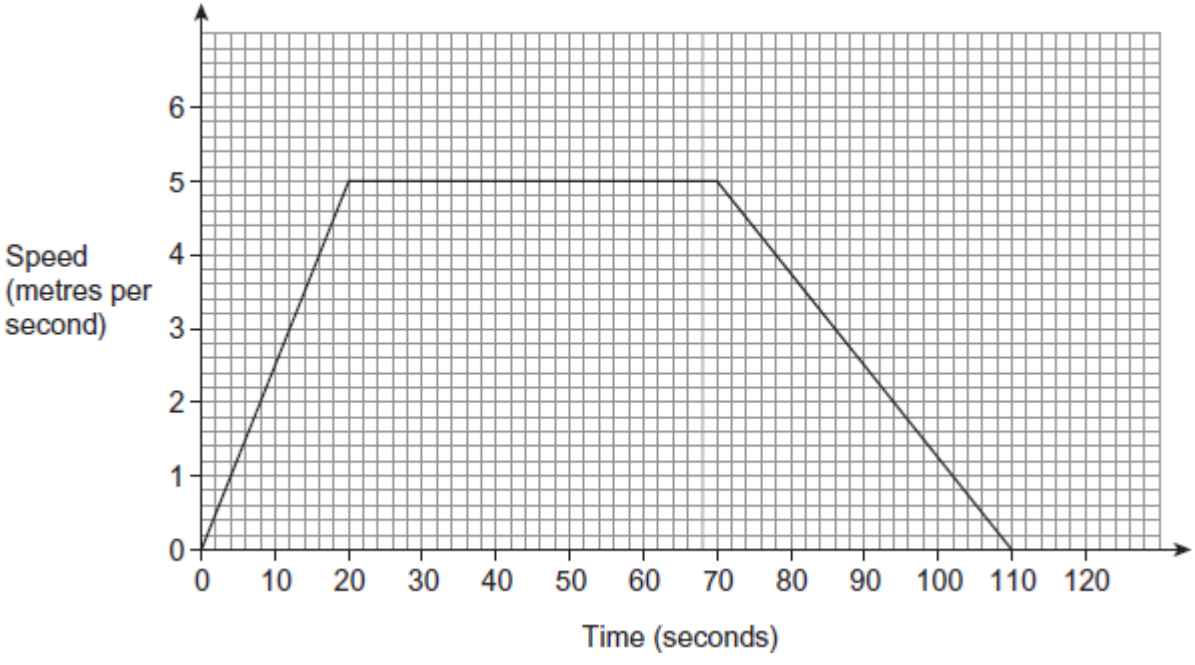
Answer .....

(Total 4 marks)

Q2.

The distance around a cycle track is 400 metres.

Robin cycles on the track.
Here is his speed-time graph.



(a) Show that Robin cycles **exactly** once around the track in 110 seconds.

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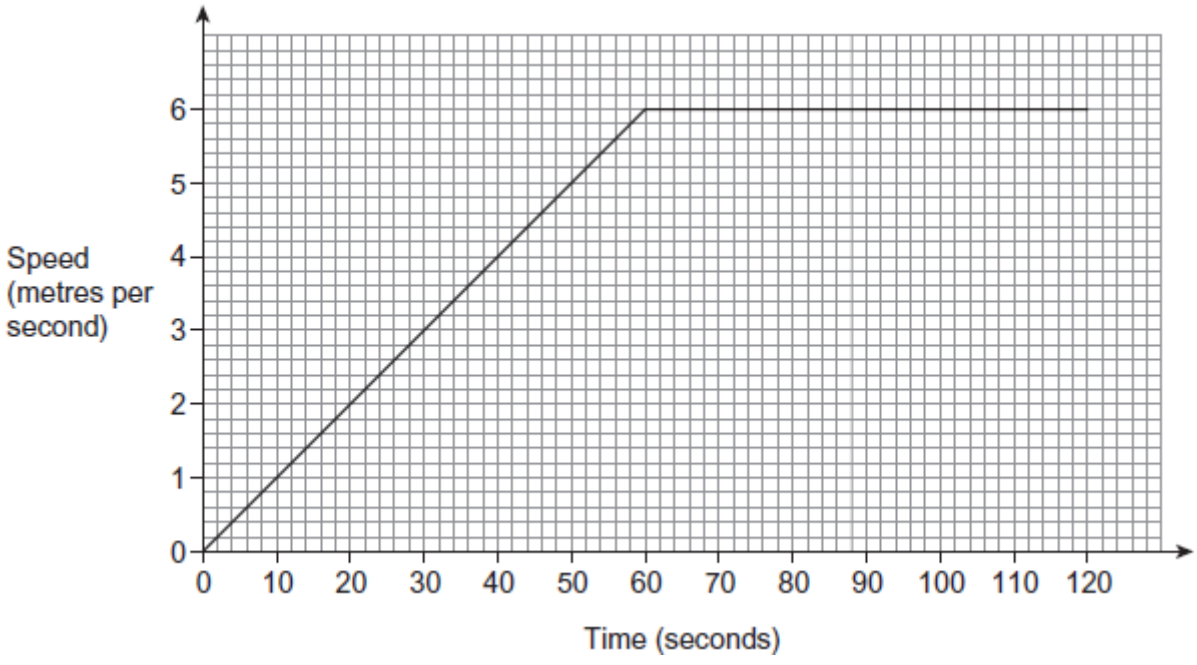
(2)

(b) Sanjay cycles on the same track.

Here is his speed-time graph.



Does Sanjay cycle the first 400 metres in a quicker time than Robin?
You **must** show your working.

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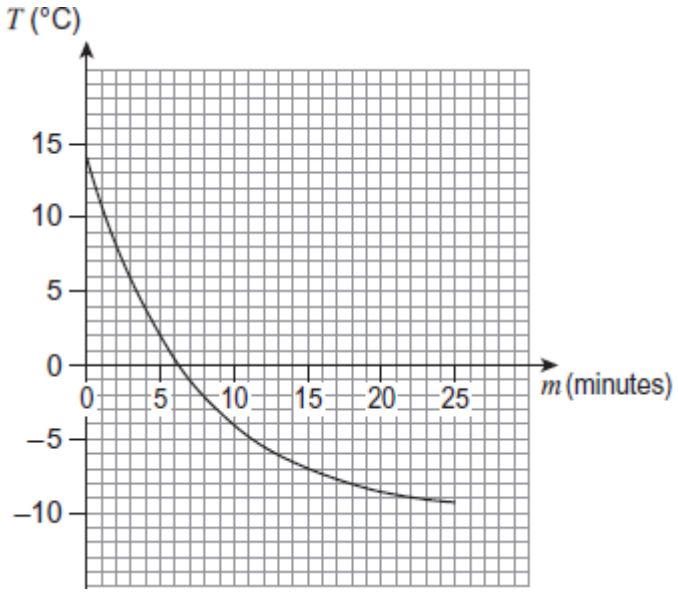
(3)
(Total 5 marks)

Q3.

The graph shows the temperature, T (°C) of bread, m (minutes) after it is placed in a freezer.



(a) How many minutes does it take for the temperature to reach 0 °C?

Answer ..... min

(1)

(b) Estimate the rate at which the temperature is decreasing when $m = 3$
You **must** show your working.

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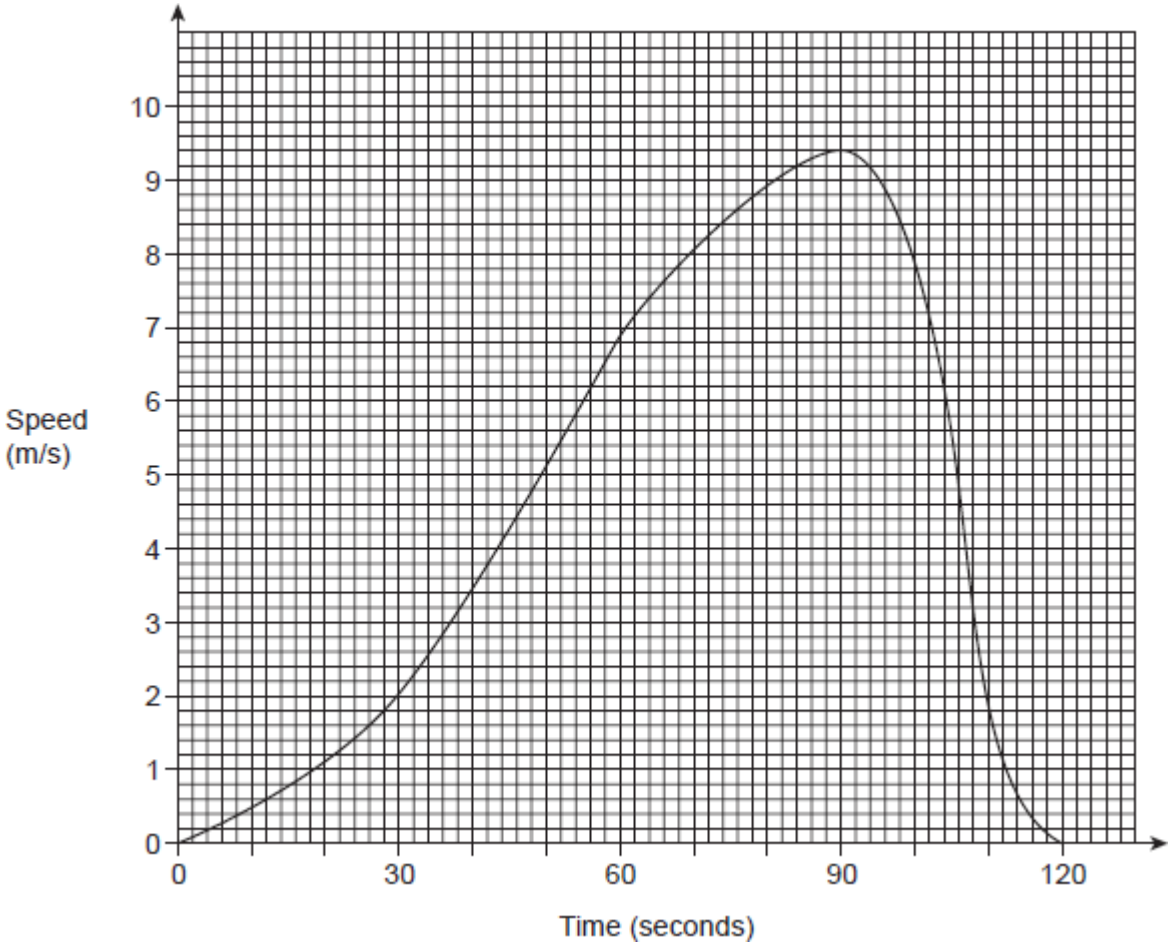
Answer ..... °C per minute

(3)

(Total 4 marks)

Q4.

The graph shows the speed of a snowboarder for 2 minutes.



(a) Estimate the distance travelled by the snowboarder.
State the units of your answer.

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Answer .....

(4)

(b) Work out the gradient of the graph at 70 seconds.

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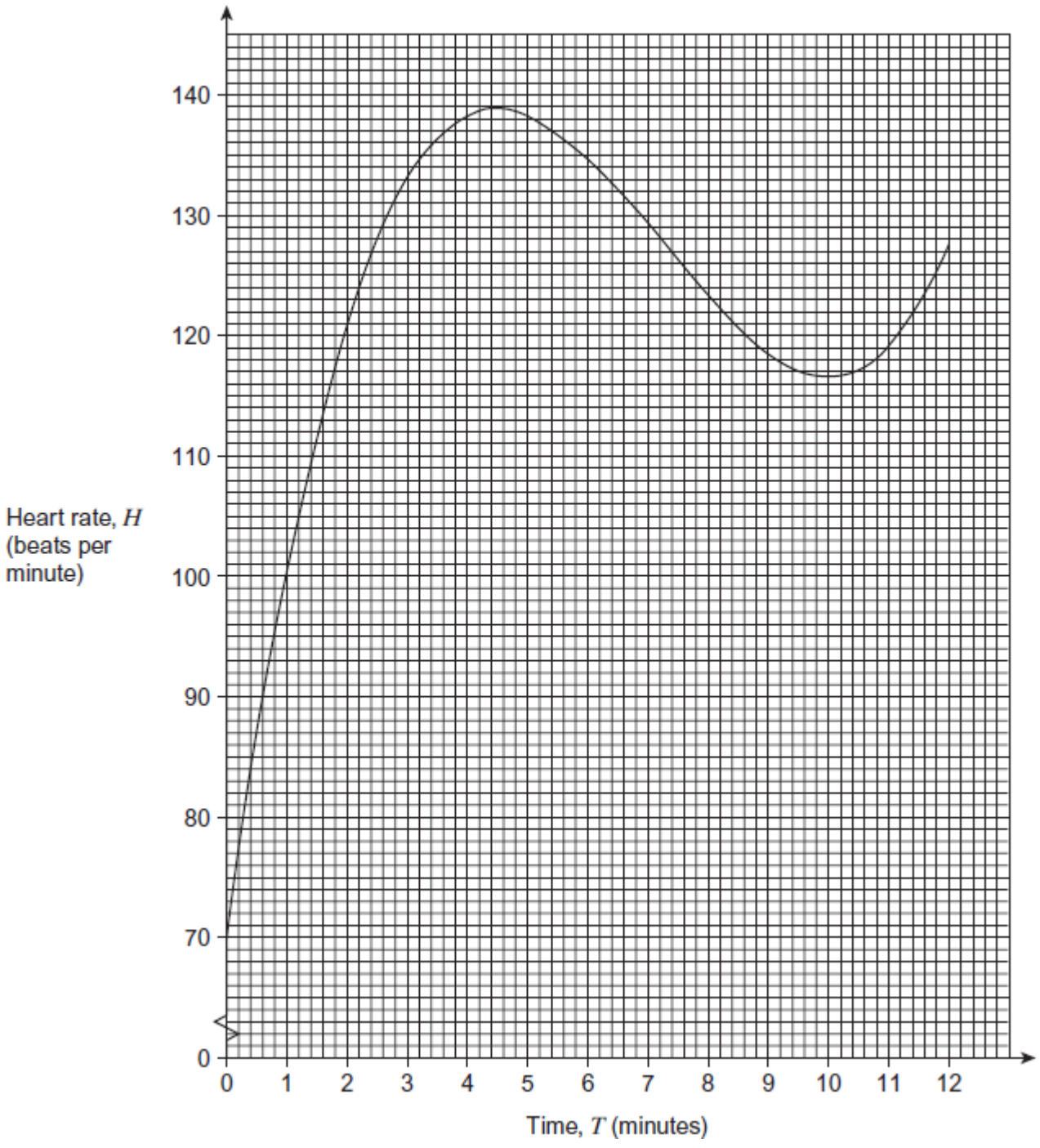
Answer ..... m/s²

(3)
(Total 7 marks)

Q5.

Leroy goes to a gym to exercise.

The graph shows his heart rate, H (beats per minute) during 12 minutes of exercise.



(a) What was his heart rate when he started to exercise?

Answer ..... beats per min

(1)

(b) How many minutes of exercise did it take for him to reach his highest heart rate?

Answer ..... min

(1)

(c) By drawing a tangent, work out the rate of increase of H when $T = 4$
You **must** show your working.

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Answer ..... beats per min^2

(3)
(Total 5 marks)