MATHEMATICS (EXTENDED) 0580
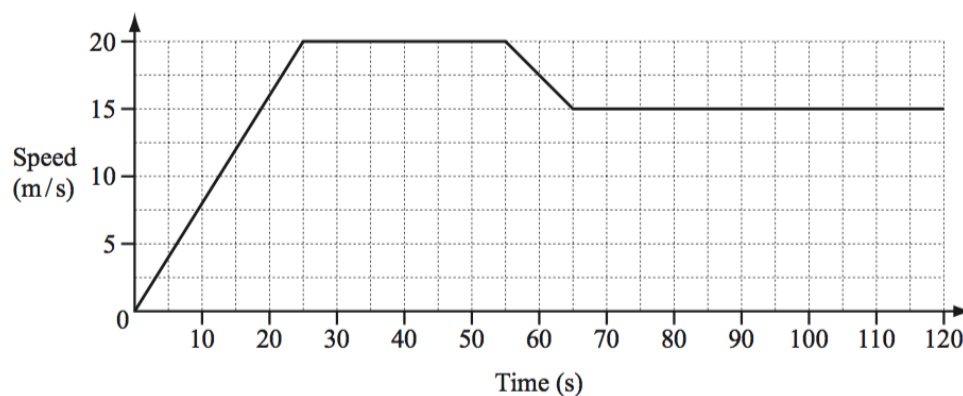
REVISION 4
GRAPHS IN
PRACTICAL SITUATIONS

1. The diagram shows the speed-time graph for the first 120 seconds of a car journey.

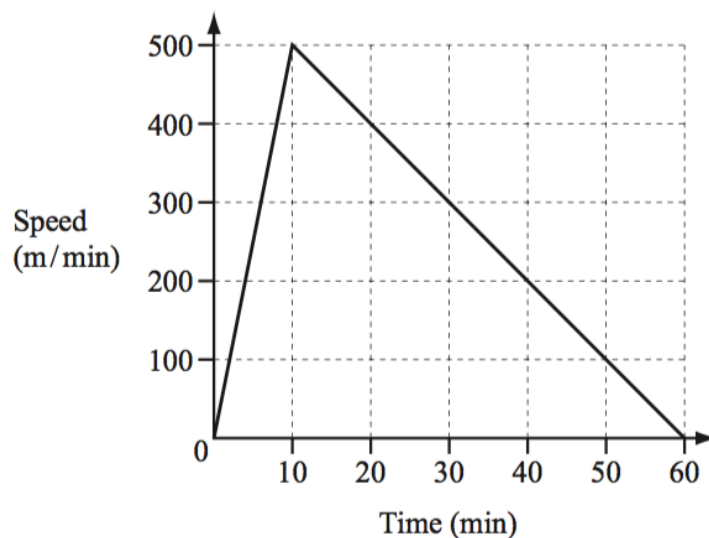**(a)** Calculate the acceleration of the car during the first 25 seconds.

Answer: …………………………………… [1]

(b) Calculate the distance traveled by the car in the first 120 seconds.

Answer: …………………………………… [4]

2.

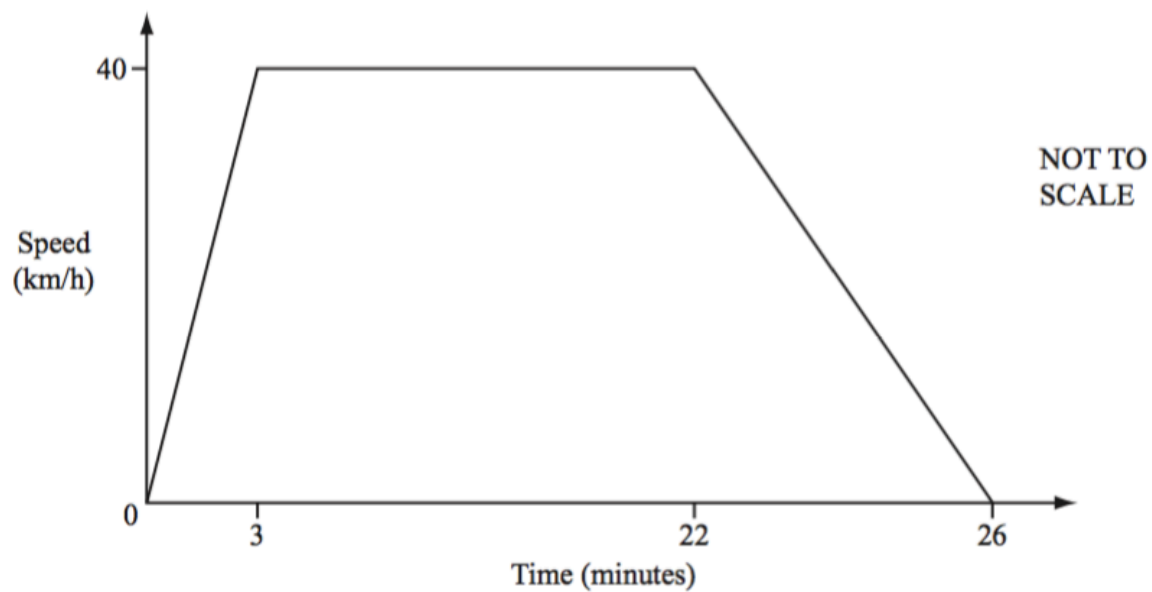The diagram shows the speed-time graph for a boat journey.

(a) Work out the acceleration of the boat in metres/minute².

Answer: …………………………………… [1]

(b) Calculate the total distance travelled by the boat.
Give your answer in kilometres.

Answer: …………………………………… [4]

3.

Speed (km/h)

40

0   3   22   26

Time (minutes)

NOT TO SCALE

The diagram shows the speed-time graph of a train journey between two stations. The train accelerates for 3 minutes, travels at a constant maximum speed of 40 km/h, then takes 4 minutes to slow to a stop.

Calculate the **distance** in kilometres between the two stations.

Answer: ……………………………………… [4]

SEKOLAH BUKIT SION - IGCSE MATH REVISION

4. Ali leaves home at 10 00 to cycle to his grandmother's house. He arrives at 13 00.
The distance-time graph represents his journey.
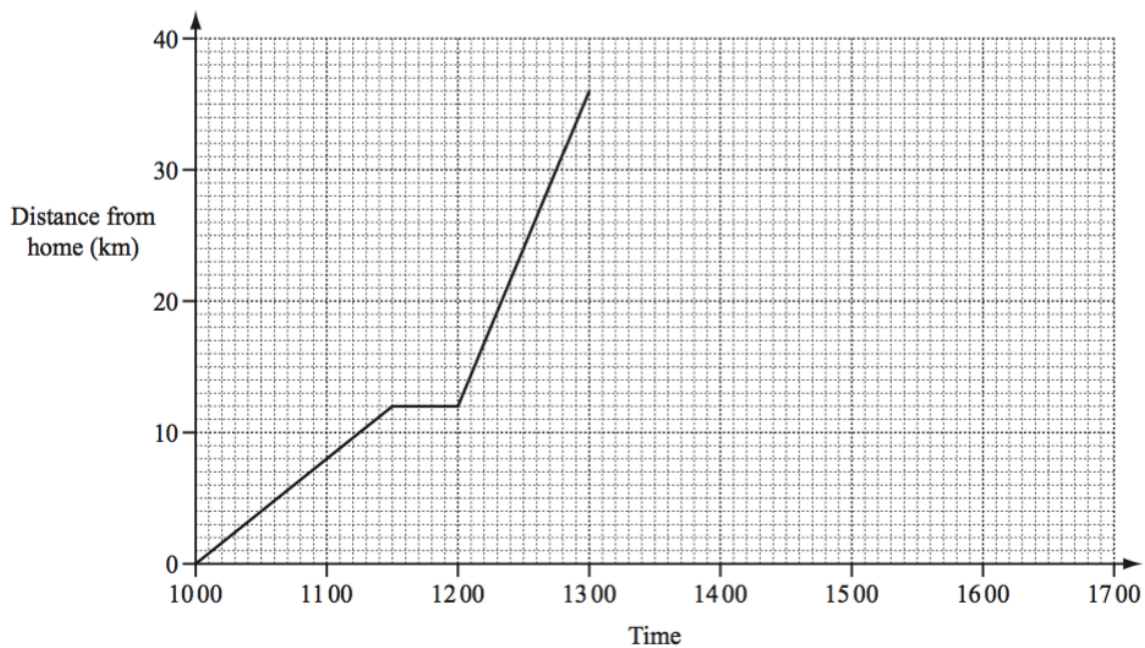
(a) Calculate Ali's speed between 10 00 and 11 30.
Give your answer in kilometres per hour.

Answer: …………………………………… [2]

(b) Show that Ali's average speed for the whole journey to his grandmother's house is 12 km/h.

[2]

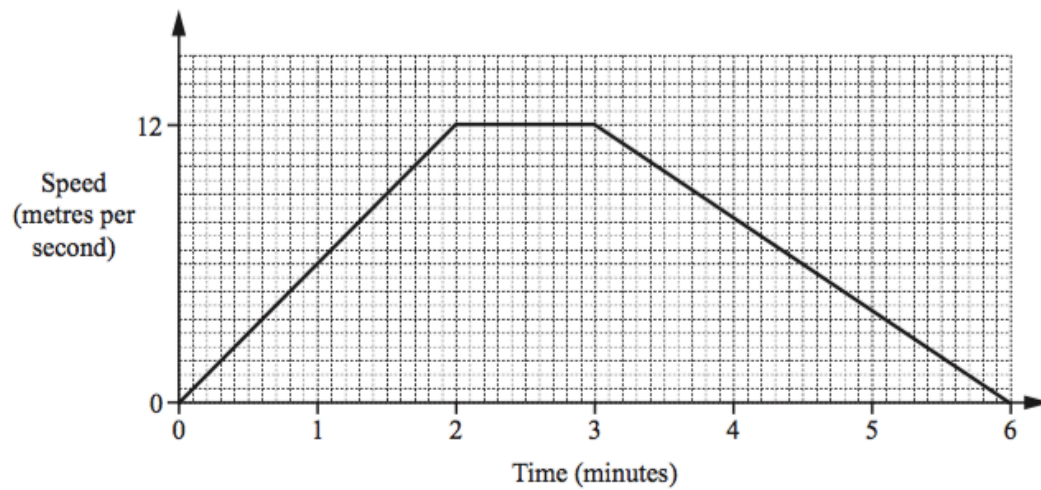**(c)** Change 12 kilometres/hour into metres per minute.

Answer: …………………………………… [2]

(d) Ali stays for 45 minutes at his grandmother's house and then returns home.
He arrives home at 16 42.

Complete the distance-time graph. [2]

5.

A tram leaves a station and accelerates for 2 minutes until it reaches a speed of 12 metres per second.
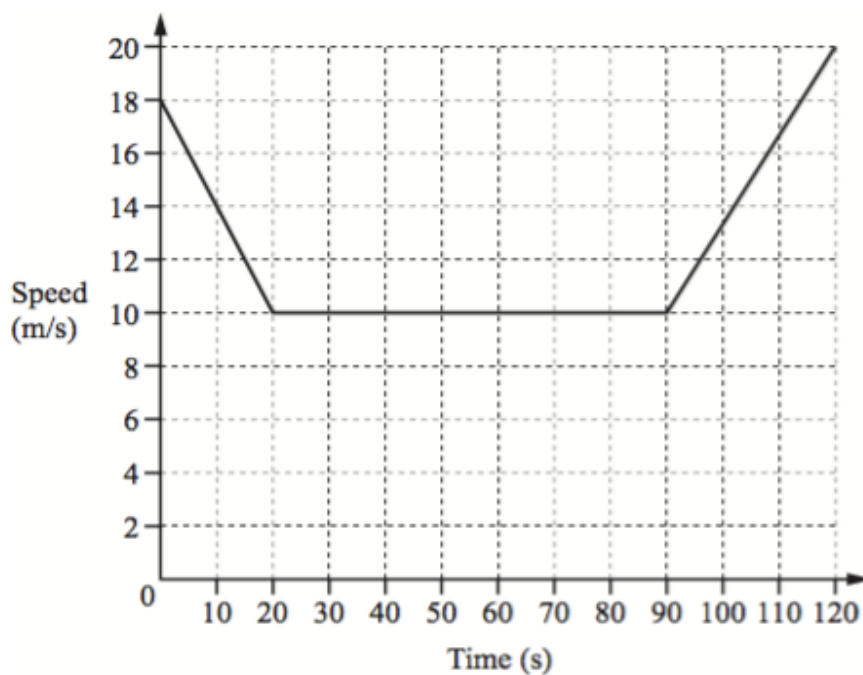It continues at this speed for 1 minute.
It then decelerates for 3 minutes until it stops at the next station.
The diagram shows the speed-time graph for this journey.

Calculate the distance, in metres, between the two stations.

Answer: ………………………………………… [3]

6.

The diagram shows the speed-time graph for 120 seconds of a car journey.

(a) Calculate the deceleration of the car during the first 20 seconds.

Answer: …………………………………… [1]
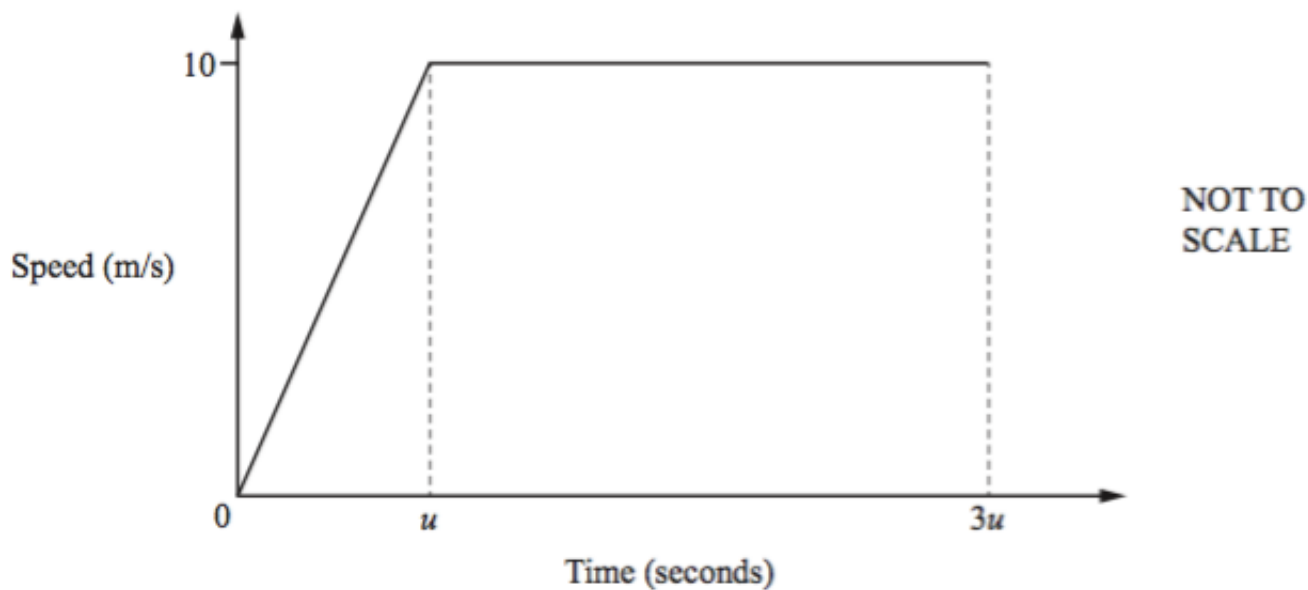
(b) Calculate the total distance travelled by the car during the 120 seconds.

Answer: …………………………………… [3]

(c) Calculate the average speed for this 120 second journey.

Answer: …………………………………… [1]

7.

A car starts from rest and accelerates for u seconds until it reaches a speed of 10 m/s.
The car then travels at 10 m/s for $2u$ seconds.
The diagram shows the speed-time graph for this journey.

The distance travelled by the car in the first $3u$ seconds is 125 metres.
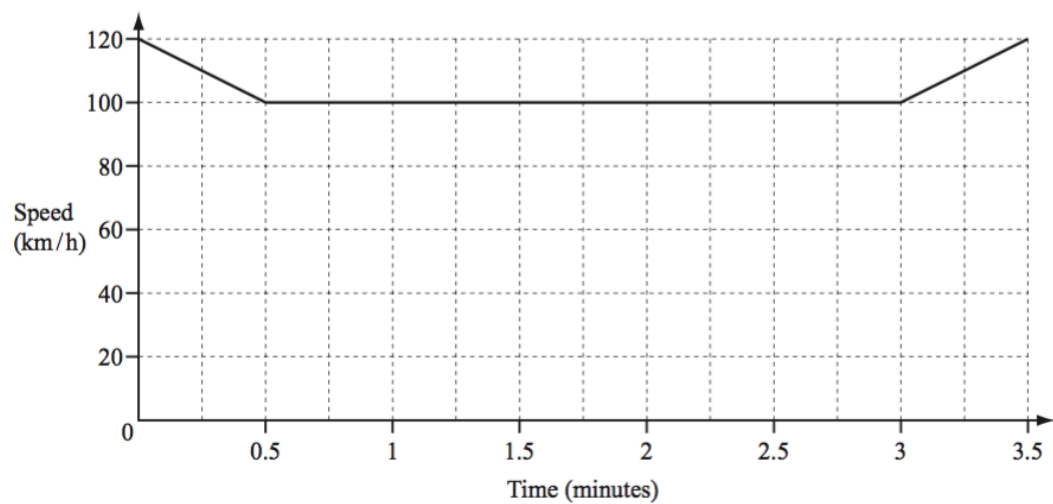
(a) Find the value of u.

Answer: …………………………………………… [3]

(b) Find the acceleration in the first u seconds.
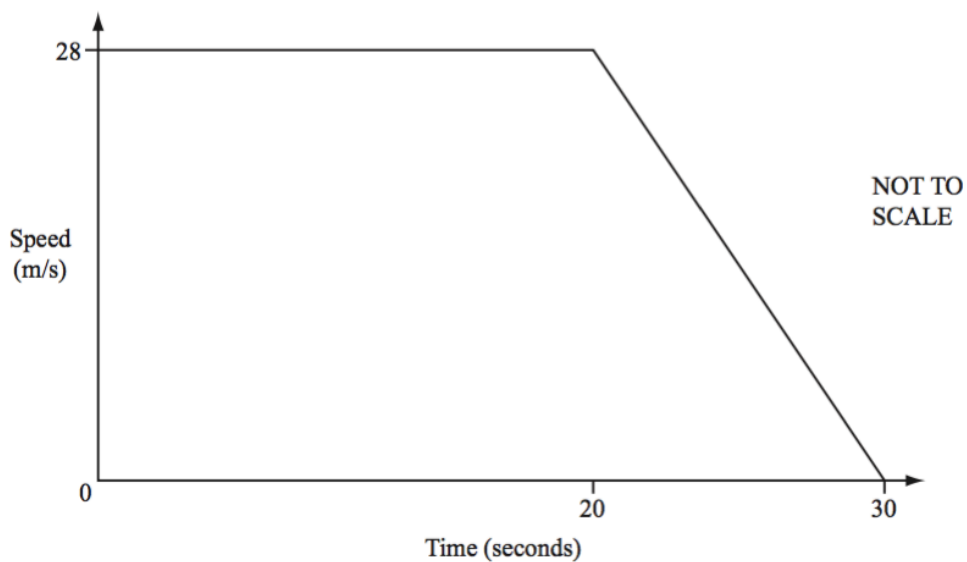
Answer: …………………………………………… [1]

8.

The diagram shows the speed-time graph for part of a car journey.
The speed of the car is shown in kilometres/**hour**.

Calculate the distance travelled by the car during the 3.5 **minutes** shown in the diagram. Give your answer in kilometres.

Answer: …………………………………………… [4]

9.

The diagram shows the speed-time graph of a car.
It travels at 28 m/s for 20 seconds and then decelerates until it stops after a further
10 seconds.

(a) Calculate the deceleration fo the car.

Answer: …………………………………… [1]

(b) Calculate the distance travelled during the 30 seconds.

Answer: …………………………………… [3]