

- 1** A car journey is in two stages.
- Stage 1 The car travels 110 miles in 2 hours.
- Stage 2 The car travels 44 miles at the same average speed as Stage 1

Work out the time for Stage 2

Give your answer in minutes.

[3 marks]

Answer _____ minutes

- 2 A , B , C and D are junctions on a motorway.

Not drawn
accurately



distance $CD = 3 \times$ distance AB

distance $BC = 25$ miles

Salma drives from A to C .

She drives for 30 minutes at an average speed of 62 miles per hour.

Work out the distance AD .

[4 marks]

Answer _____ miles

3

Tom and Adil are the two runners in a 200-metre race.
Tom completes the race in 24 seconds.
Adil completes the race at an average speed of 28.8 kilometres per hour.

Who wins the race?
You **must** show your working.

[3 marks]

Answer

A journey has two stages.

	Distance (km)	Average speed (km/h)	Time (h)
Stage 1	30	a	$\frac{30}{a}$
Stage 2	30	b	$\frac{30}{b}$

Show that the average speed for the **whole** journey, in km/h, is $\frac{2ab}{a+b}$

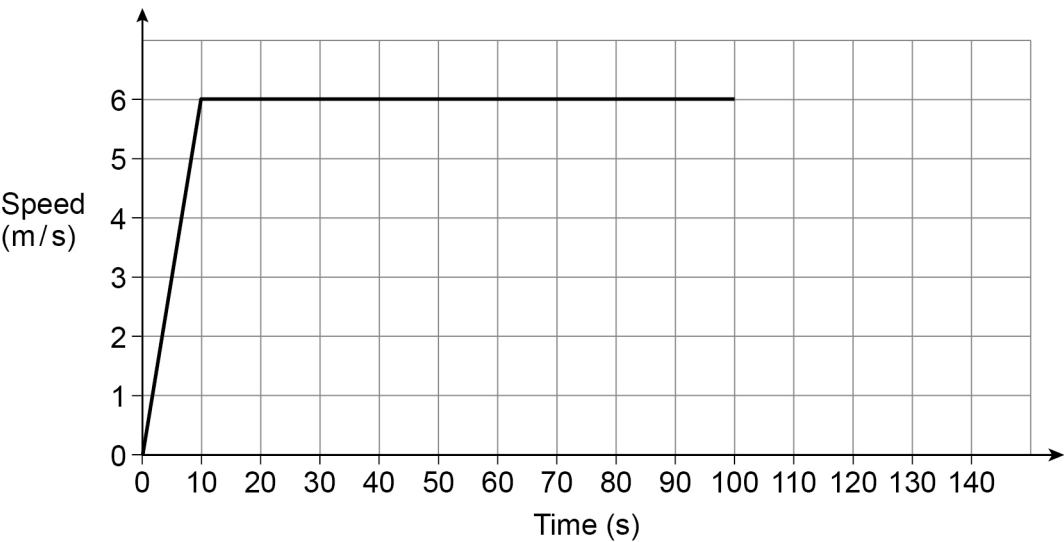
[3 marks]

Charlie is driving 293 miles home.

- leaves at 9.00 am
- travels the first 176 miles at an average speed of 48 mph
- drives the rest of the way at an average speed of 65 mph

You **must** show your working.

6 Helena ran an 800-metre race in 140 seconds.
The speed-time graph represents the first 100 seconds of her run.



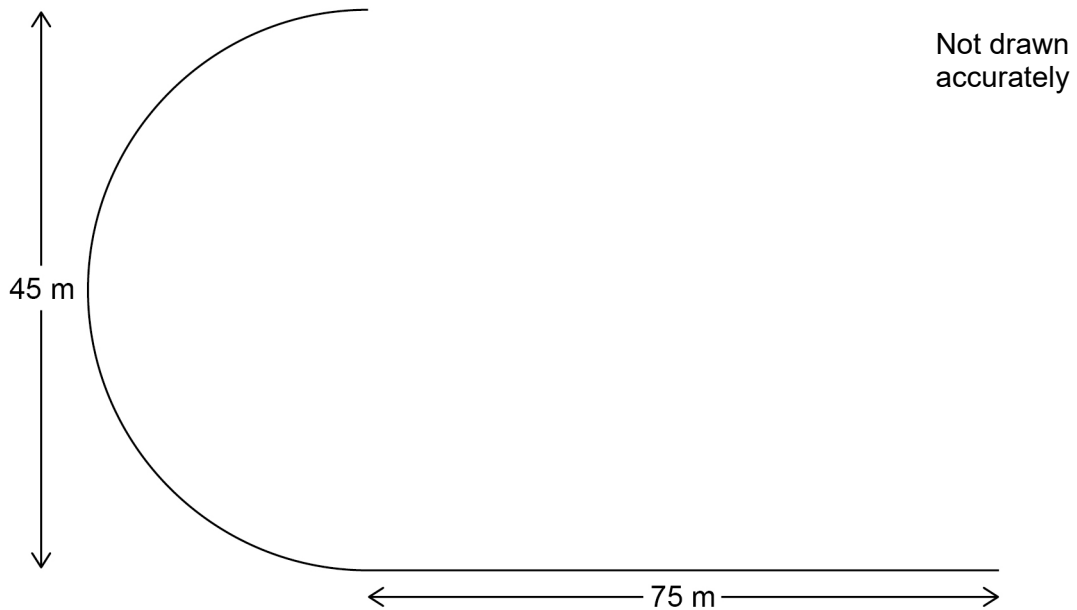
Helena ran the last 40 seconds with constant deceleration.

Work out her speed as she finished the race.

[4 marks]

Answer _____ metres per second

- 7 Part of a running track is the arc of a semicircle joined to a straight line.
The semicircle has diameter 45 metres.
The straight line has length 75 metres.



Abby runs once along this part of the track in 18 seconds.

Work out her average speed.

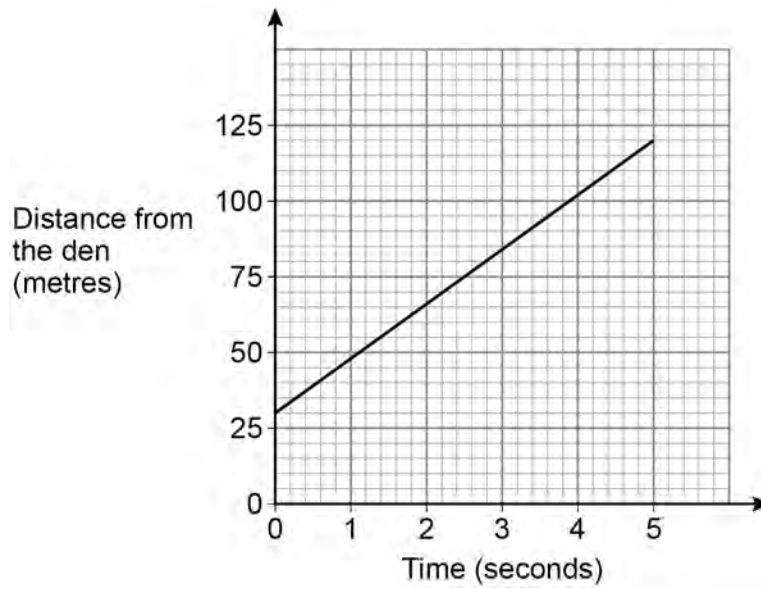
Give your answer to 2 significant figures.

[4 marks]

Answer _____ m/s

8

A lion is sprinting in a straight line away from its den.
The graph shows the lion's distance from the den.



Work out the speed of the lion in metres per second.

[3 marks]

Answer _____ m/s

- 9 (a)** On Monday, Larrs swims 50 metres in 40 **seconds** at a constant speed.
On Tuesday, Larrs swims 1.5 kilometres.

Assume he swims at the same constant speed as on Monday.

How many **minutes** does he swim for on Tuesday?

[5 marks]

Answer _____ minutes

- 9 (b)** In fact, on Tuesday Larrs swims at a slower constant speed than on Monday.
What does this mean about the number of minutes he swims for on Tuesday?
Tick the correct box.

[1 mark]

☐

It is less than the answer to part (a)

☐

It is the same as the answer to part (a)

☐

It is greater than the answer to part (a)

☐

It is not possible to say