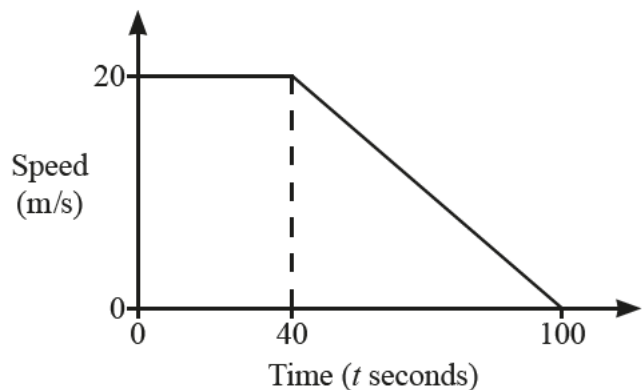**1.** Nov/2020/Paper_11/No.23

The diagram is the speed–time graph representing part of a train's journey.
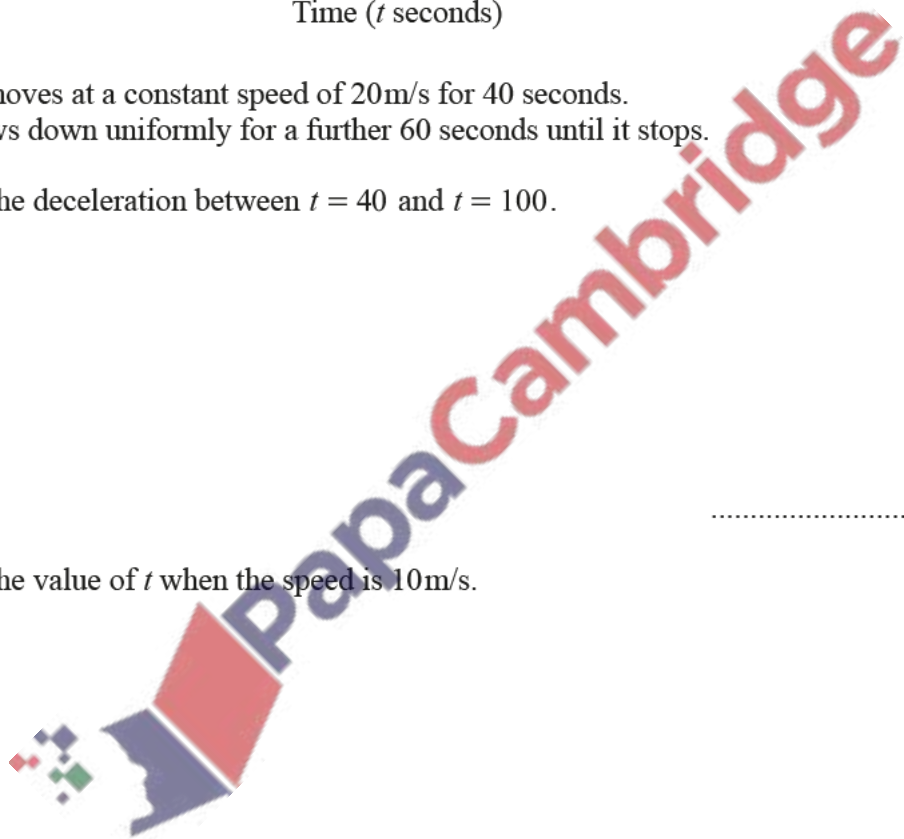

NOT TO SCALE

The train moves at a constant speed of 20m/s for 40 seconds.
It then slows down uniformly for a further 60 seconds until it stops.

(a) Find the deceleration between $t = 40$ and $t = 100$.

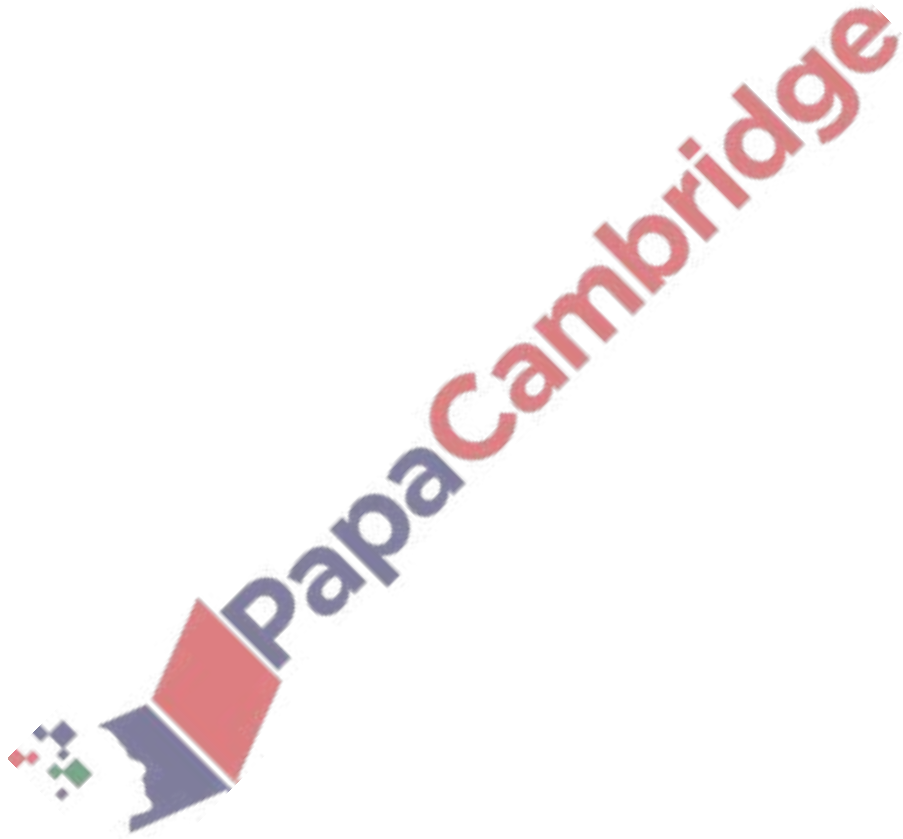.. m/s^2 [1]

(b) Find the value of t when the speed is 10m/s.

$t =$ .... [1]

(c) Find the average speed during the 100 seconds.

.... m/s [3]
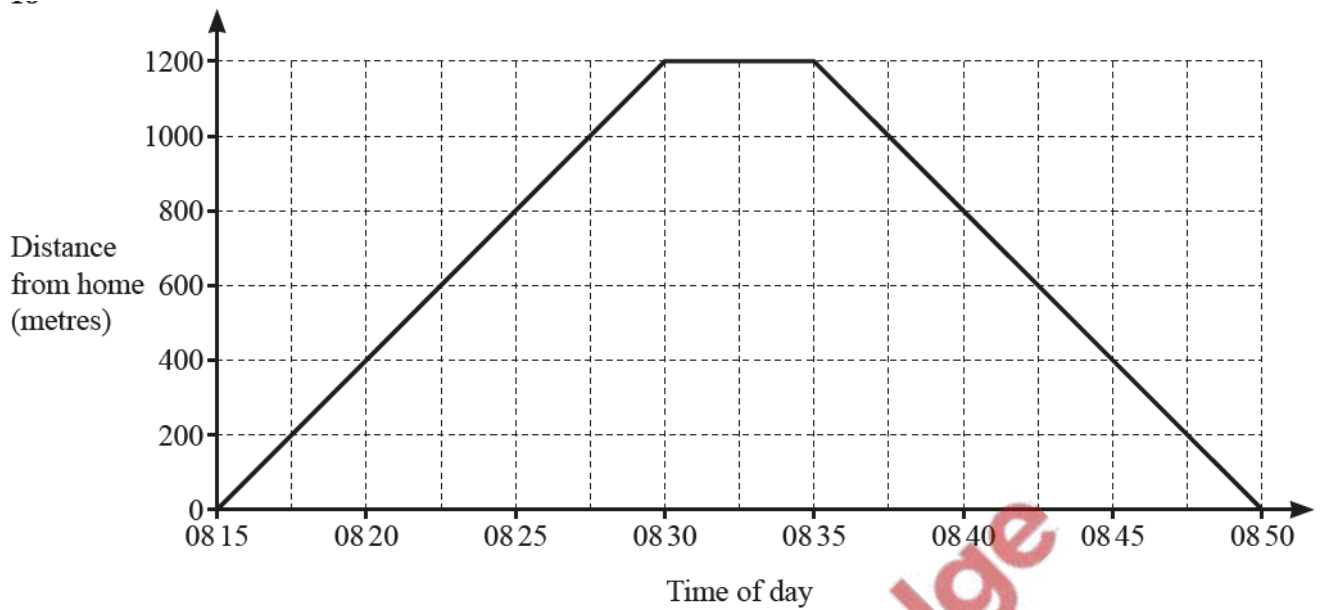
The diagram is the distance–time graph of Safira's journey from home to a shop and back again.
She leaves home at 08 15 and returns at 08 50.

(a) How many minutes does she stay in the shop?

.... minutes [1]

(b) At 08 30, her brother leaves home and goes to the shop.
He walks at the same speed as Safira.

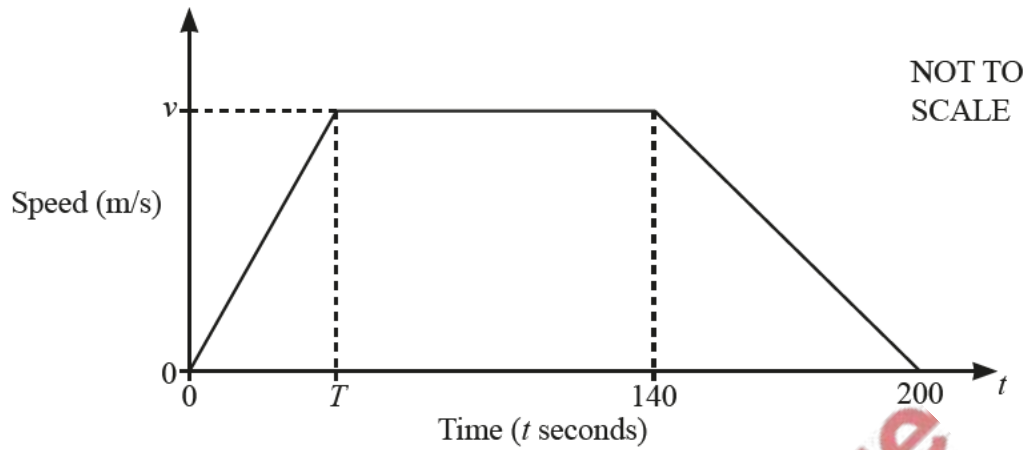   **(i)** On the grid, draw the graph of his journey to the shop. [1]

    (ii) How far is he from the **shop** when he meets Safira?

.... m [1]

(c) Calculate the speed Safira walks to the shop.
Give your answer in km/h.

....km/h [2]

3

The diagram is the speed–time graph for part of a car's journey.

(a) The deceleration of the car between $t = 140$ and $t = 200$ is $0.2 \, \text{m/s}^2$.

Find the value of v.

$v =$ .... [2]

(b) The car travels a total of $1800 \, \text{m}$ in the 200 seconds.

Find the value of T.

$T =$ .... [3]