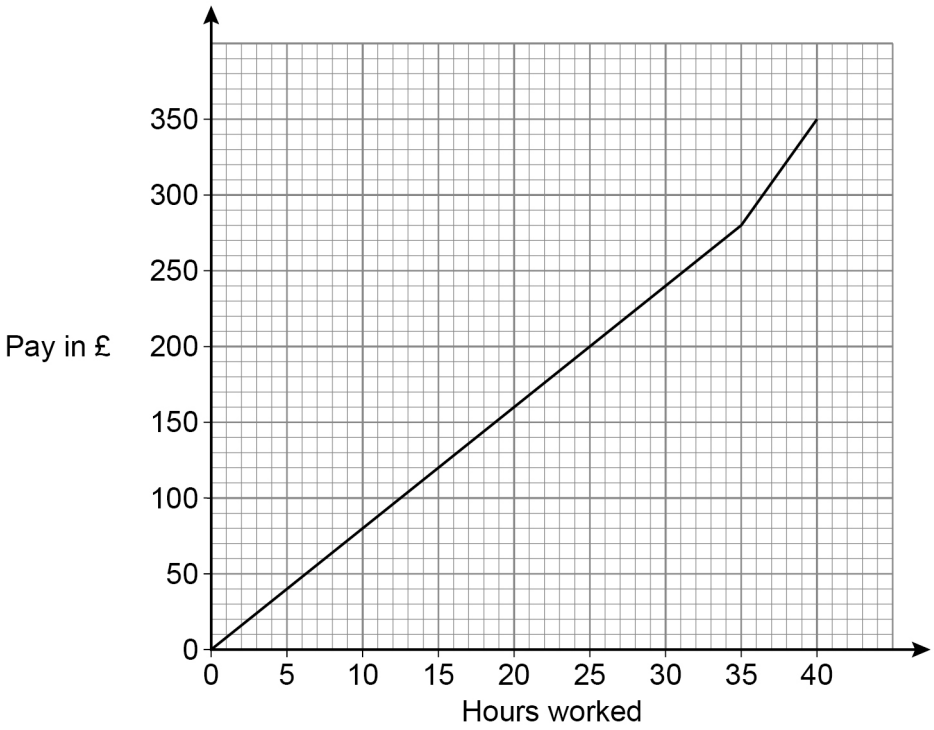
1 The graph shows how much Molly is paid for working for up to 40 hours.

She receives

a basic rate of pay for the first 35 hours worked

a higher rate of pay for the next 5 hours worked.



Work out the difference between the higher rate of pay and the basic rate of pay.

Give your answer in £ per hour.

[3 marks]

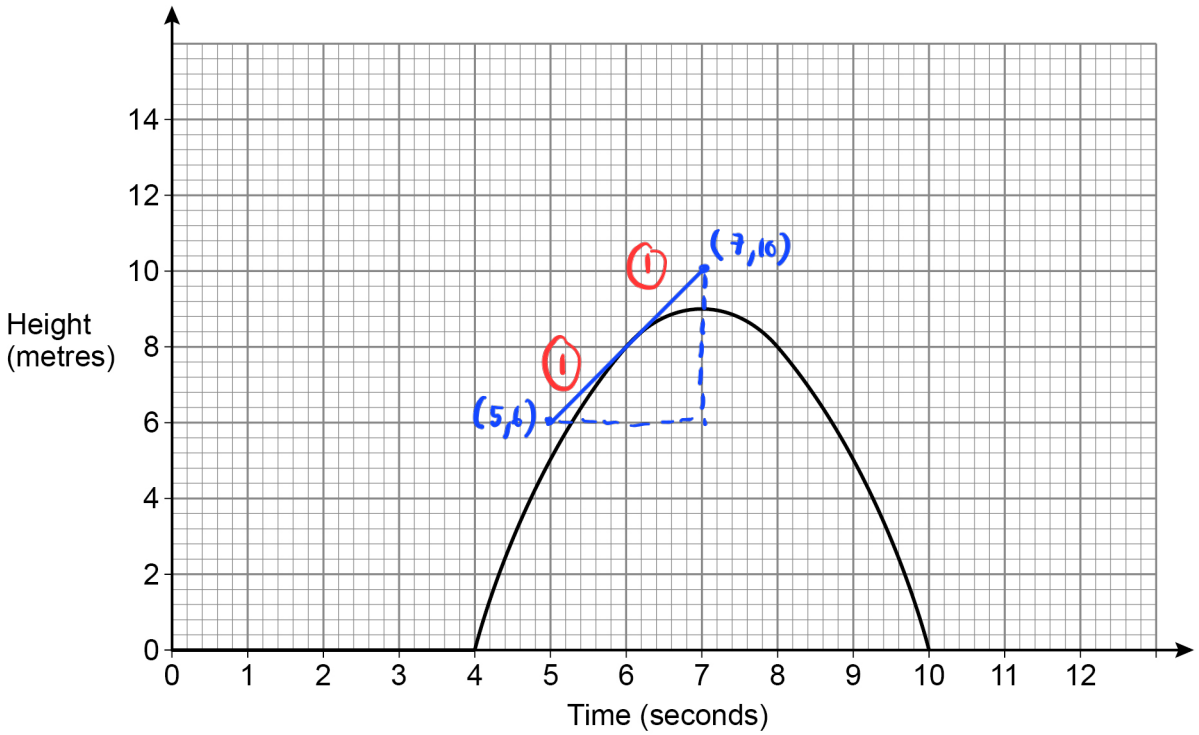
Basic : $\frac{£280}{35\,h}$ = £8 per hour (1)

Higher : $\frac{£(350-280)}{5\,h}$ = $\frac{£70}{5h}$ = £14 per hour (1)

14 − 8 = 6

Answer £ 6 (1) per hour

2 The graph shows the height above ground of a toy rocket for 10 seconds.



2 (a) For how long is the rocket in the air?

Circle your answer.

[1 mark]

10 seconds 9 seconds 6 seconds 4 seconds

2 (b) Using the graph, estimate the speed of the rocket after 6 seconds.

State the units of your answer.

[3 marks]

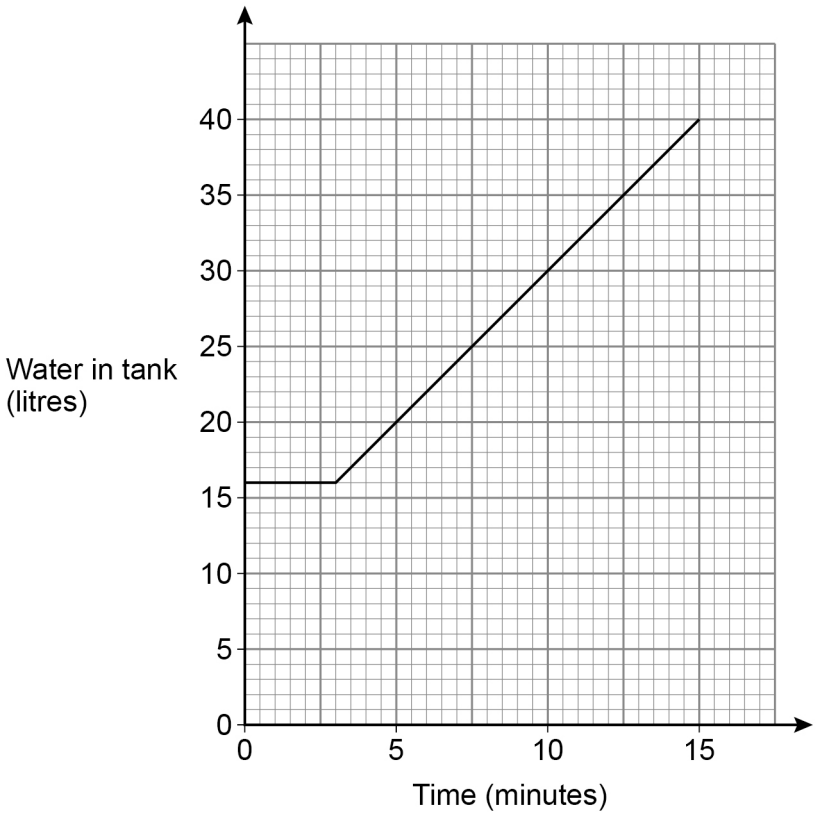
Speed : $\frac{\text{distance}}{\text{time}}$

$= \frac{10-6}{7-5} = \frac{4}{2} = 2\ m/s$

Answer 2 m/s (1)

3 (a) The tank is refilled with water from a tap.

The graph shows the amount of water in the tank **after** the leak is stopped.



Complete this report by writing a number in each answer space.

[3 marks]

Report

3 (1) minutes after the leak is stopped, the tap starts to refill the tank.

The rate at which the tank refills is 2 litres per minute.

$\frac{40-16}{15-3} = \frac{24}{12} = 2$ (1) (1)

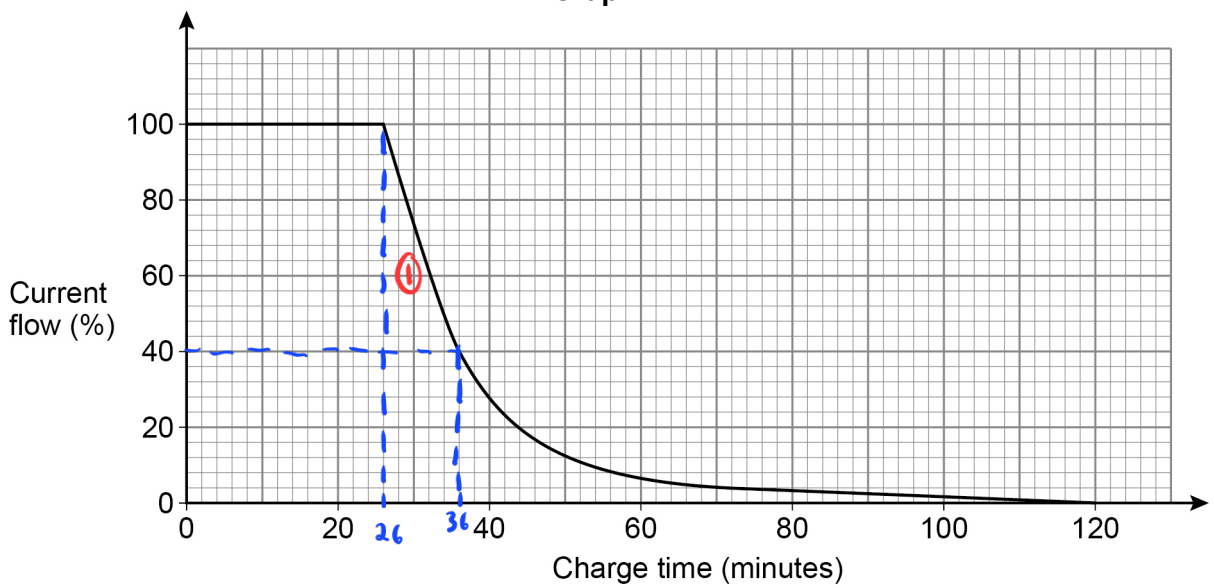
4 A mobile phone takes 2 hours to charge from empty.

When the phone is being charged, the current flow into the phone

- starts at full current flow (100%)
- continues at full current flow for a period of time
- gradually decreases until the phone is fully charged.

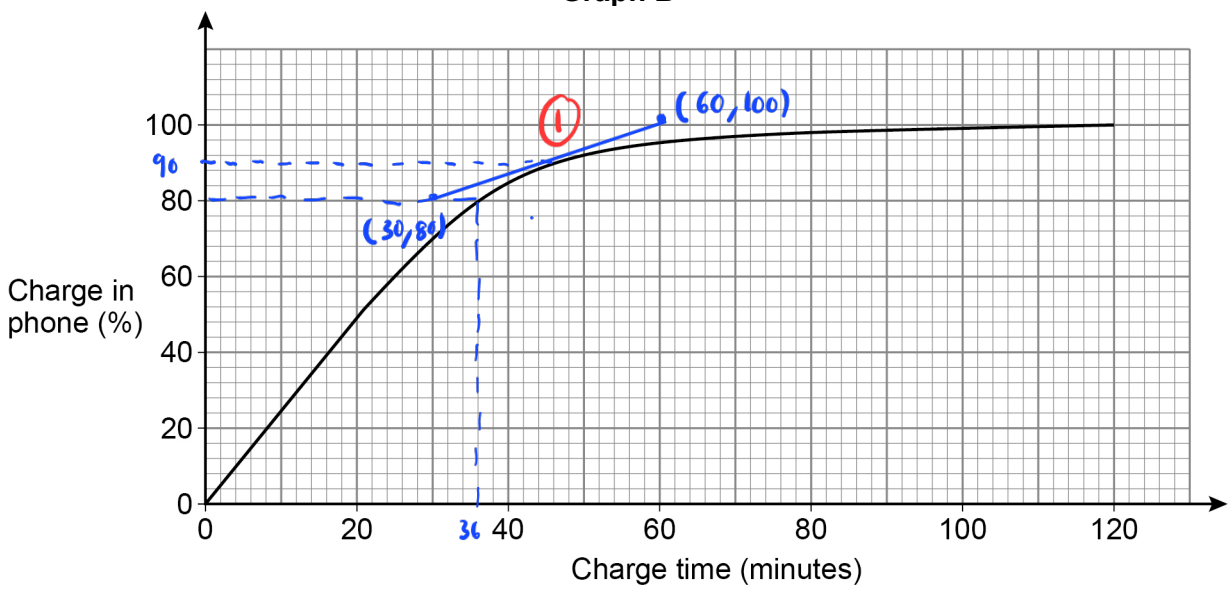
This is shown on **Graph A** below.

Graph A



Graph B shows the percentage charge in the phone when charging from empty.

Graph B



4 (a) Using **Graph B**,

estimate the rate of increase in the percentage charge when the phone has 90% charge.

[2 marks]

$\frac{100 - 80}{60 - 30} = \frac{20}{30} \times 100\% = 66.67\%$

Answer 66.7 (1) percent per minute