AQA - Graphs – GCSE Mathematics Paper-3

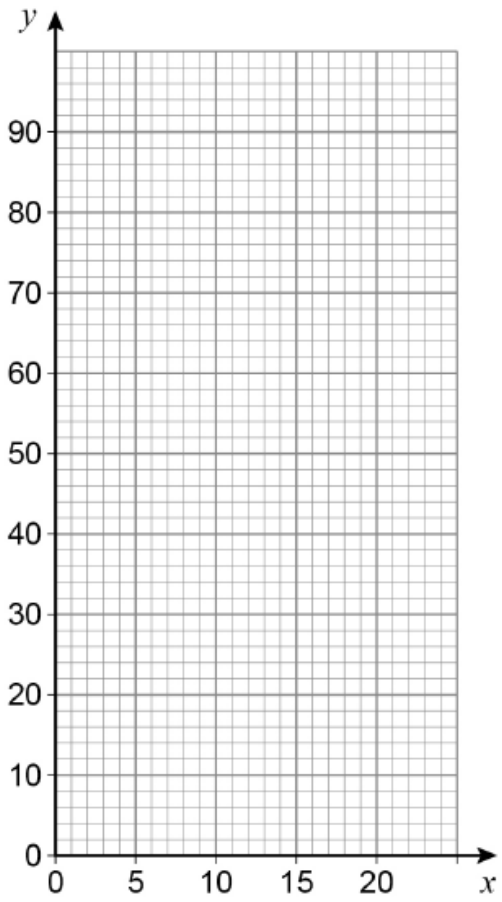
1. May/2020/Paper_3F/No.16

Here is a formula.

$$y = 3.6x$$

(a) Draw the graph of $y = 3.6x$ for values of x from 0 to 20

[2 marks]



In the formula $y = 3.6x$

y is speed in kilometres per hour (km/h)

x is speed in metres per second (m/s)

(b) Convert 50 km/h to m/s

Give your answer to the nearest whole number.

[1 mark]

Answer _____ m/s

(c) Convert 30 m/s to miles per hour.

Use 1 mile per hour = 1.61 km/h

[3 marks]

Answer _____ miles per hour

2. May/2020/Paper_3F/No.8

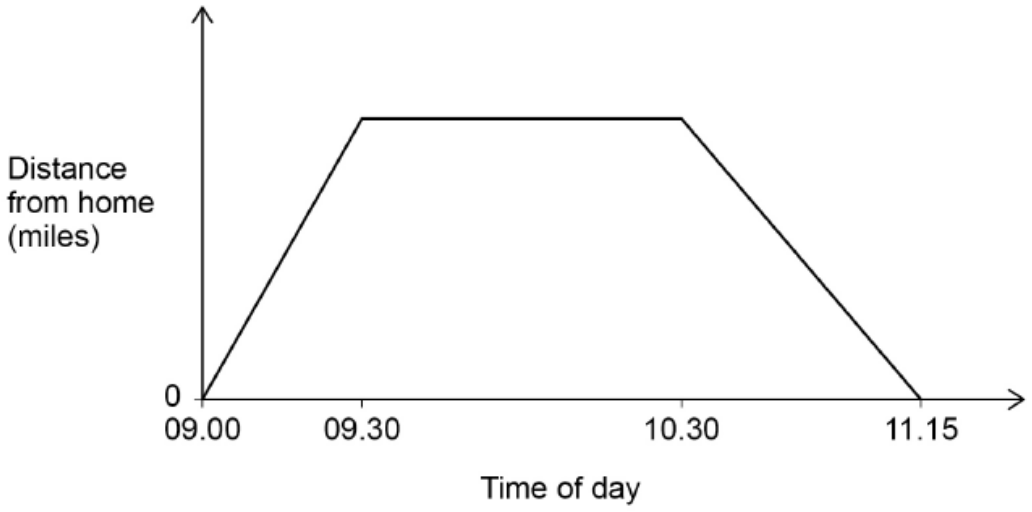
Chris visits a library.

He cycles to the library in half an hour at a speed of 12 miles per hour.

He stays at the library for one hour.

He then cycles home.

The sketch graph represents his visit.



Work out the speed, in miles per hour, at which Chris cycles home.

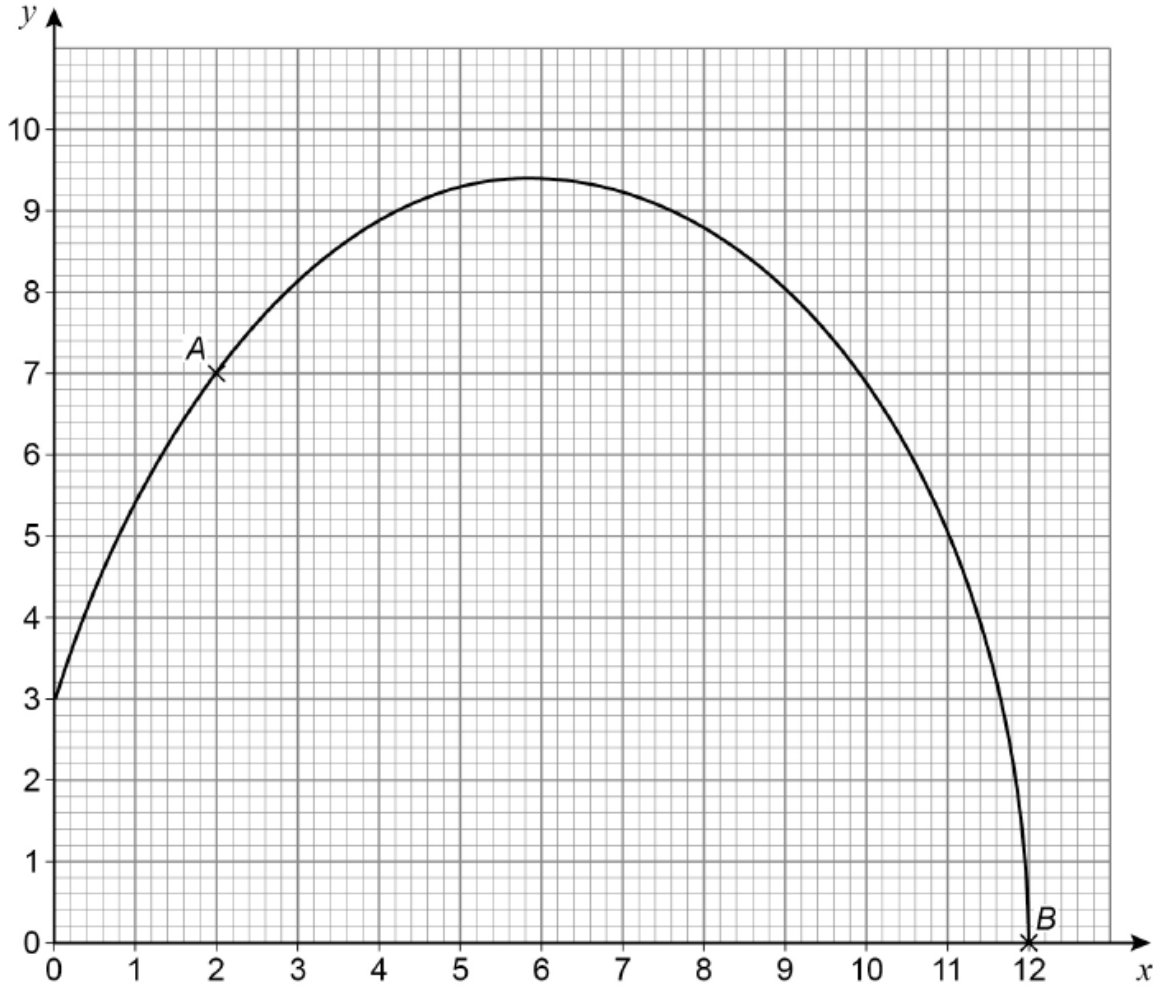
[3 marks]

Answer _____ mph

3. May/2020/Paper_3F/No.24

A and *B* are points on a curve.

A is (2, 7) *B* is (12, 0)



(a) Work out the instantaneous rate of change of y with respect to x at point *A*.

[2 marks]

Answer _____

(b) The average rate of change of y with respect to x between points A and B is worked out.

Which statement is correct?

Tick **one** box.

[1 mark]

- ☐ It is positive.
- ☐ It is zero.
- ☐ It is negative.
- ☐ You cannot tell if it is positive or negative.

4. June/2019/Paper_3F/No.29

Two sides of a triangle have lengths 13 cm and 27 cm

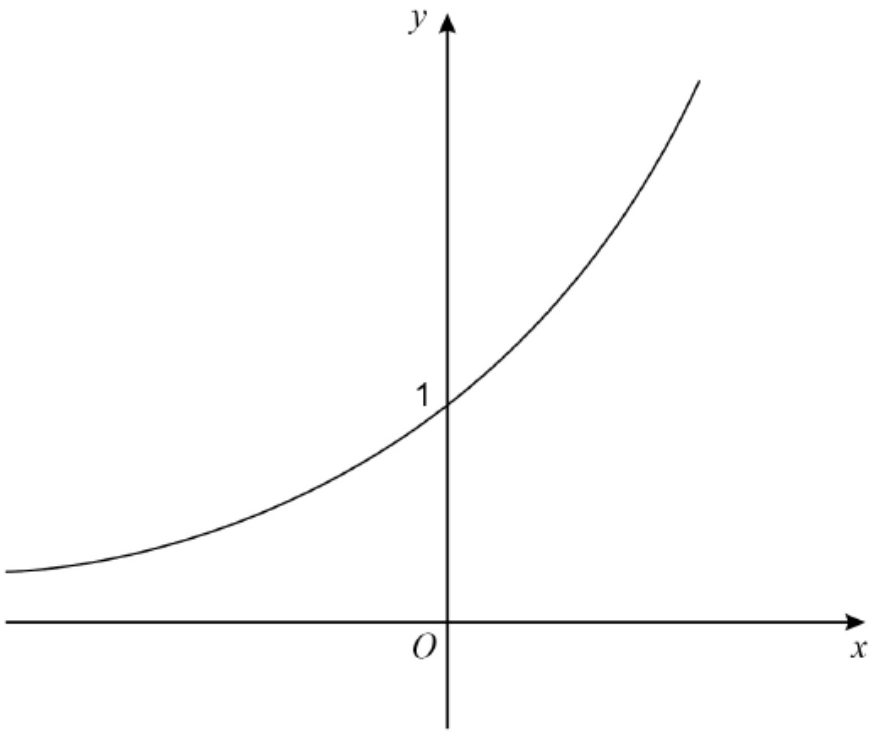
Which of these is a **possible** length of the other side?
Circle your answer.

[1 mark]

13 cm 14 cm 27 cm 40 cm

5. June/2019/Paper_3H/No.23

Here is a sketch of the curve $y = 2^x$



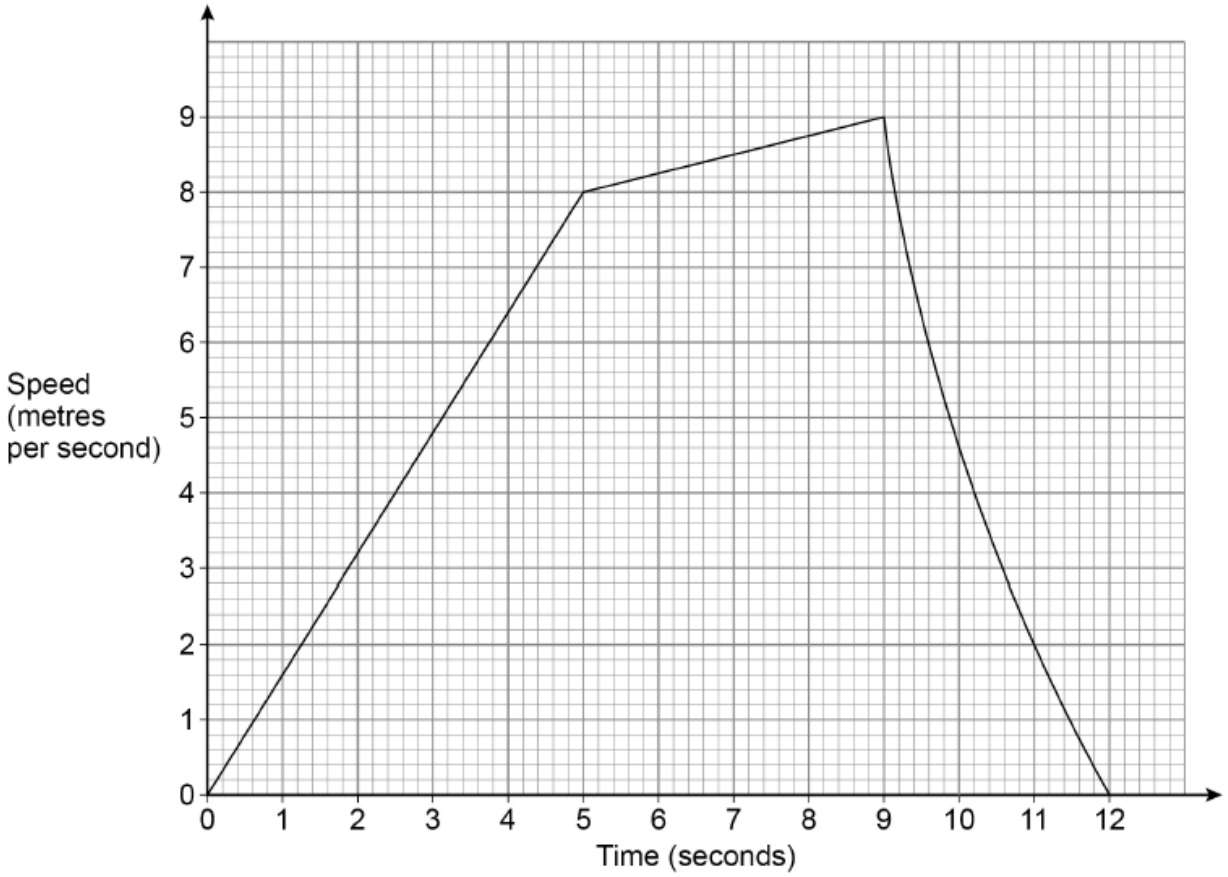
On the axes above, sketch the curve $y = 3^x$

[2 marks]

6. June/2019/Paper_3H/No.28

Leo runs for 12 seconds.

The graph shows his speed.



(a) Show that the distance he runs is less than 67.5 metres.

[4 marks]

(b) Work out his average acceleration for the first 9 seconds.

State the units of your answer.

[2 marks]

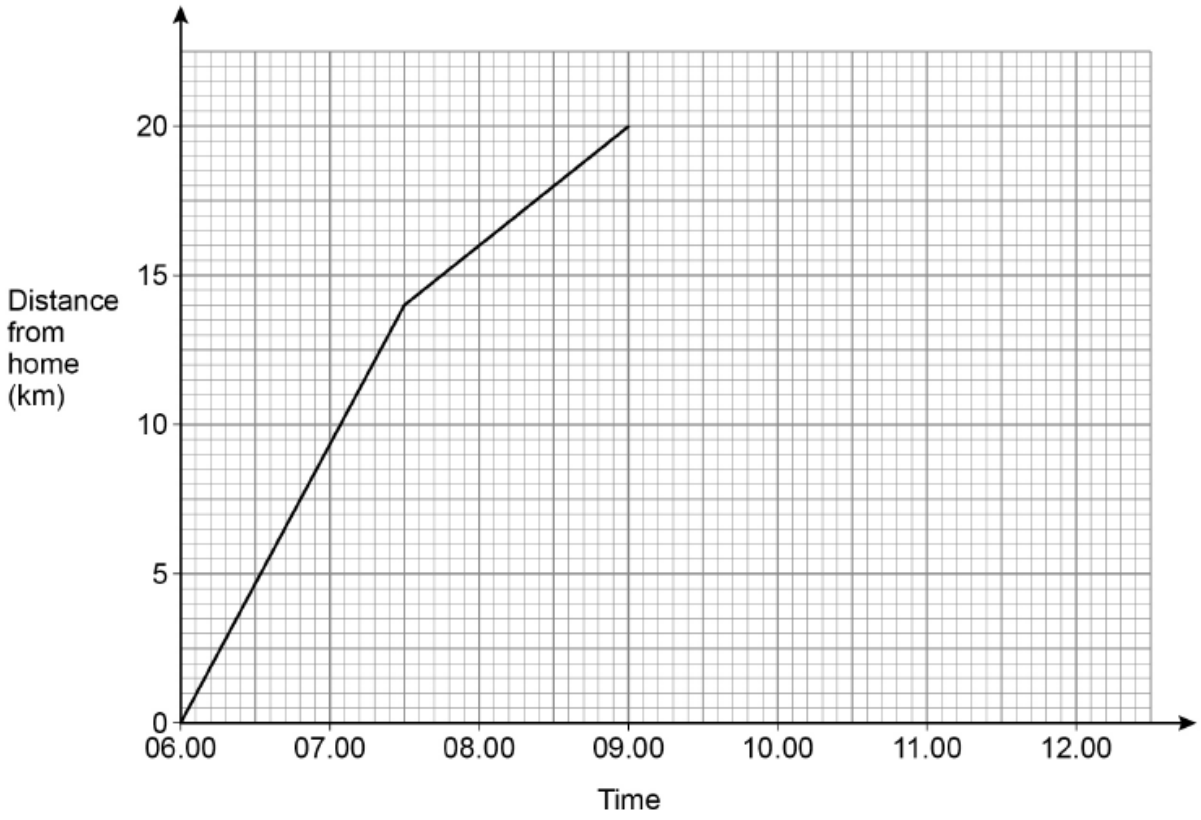
Answer _____

7. June/2019/Paper_3F/No.18

Jenny leaves home at 06.00

She runs for 3 hours.

Here is a distance-time graph of her run.



(a) How far from home is she after 3 hours?

[1 mark]

Answer _____ km

(b) For the next hour she rests.

She then gets a bus home.

She arrives home at 11.30

Complete the distance-time graph.

Assume the bus travels at a constant speed.

[2 marks]

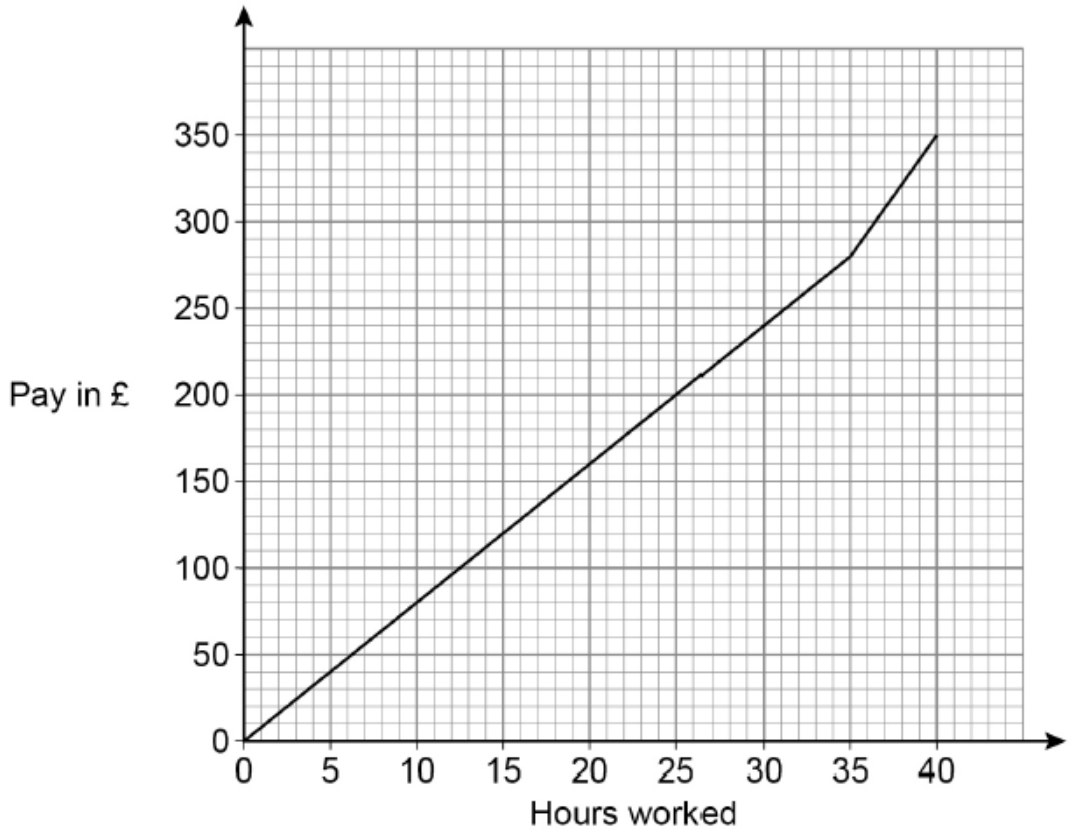
8. June/2019/Paper_3F/No.29

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]

Answer £ _____ per hour

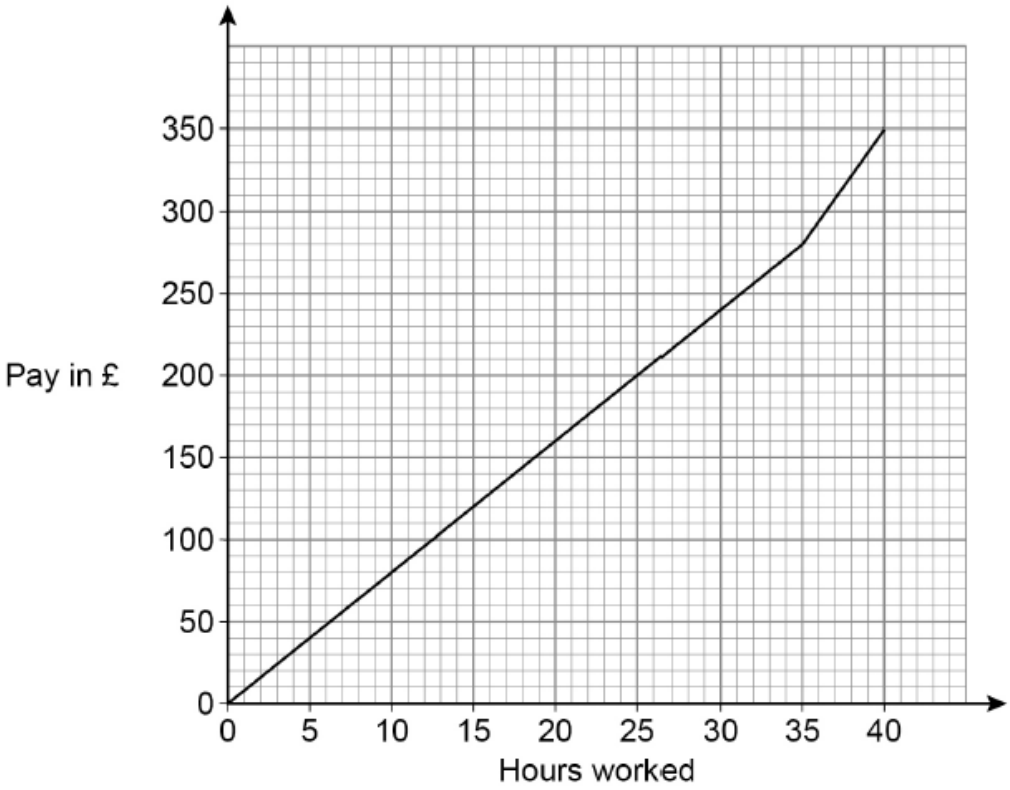
9. June/2019/Paper_3H/No.12

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]

Answer £_____ per hour

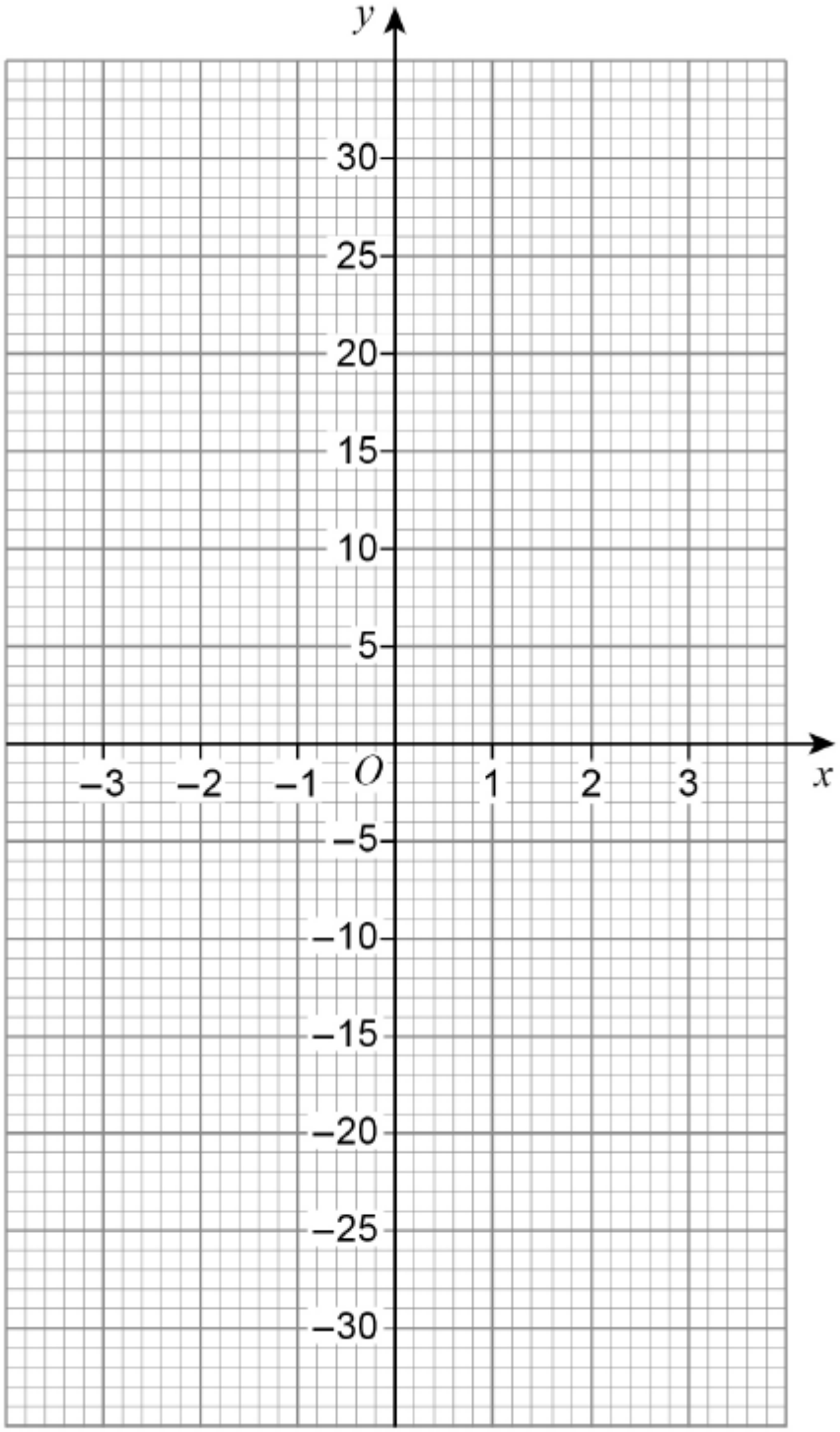
10. June/2019/Paper_3H/No.14

A graph has equation $y = x^3 + a$ where a is an integer.

The graph passes through the point (3, 29)

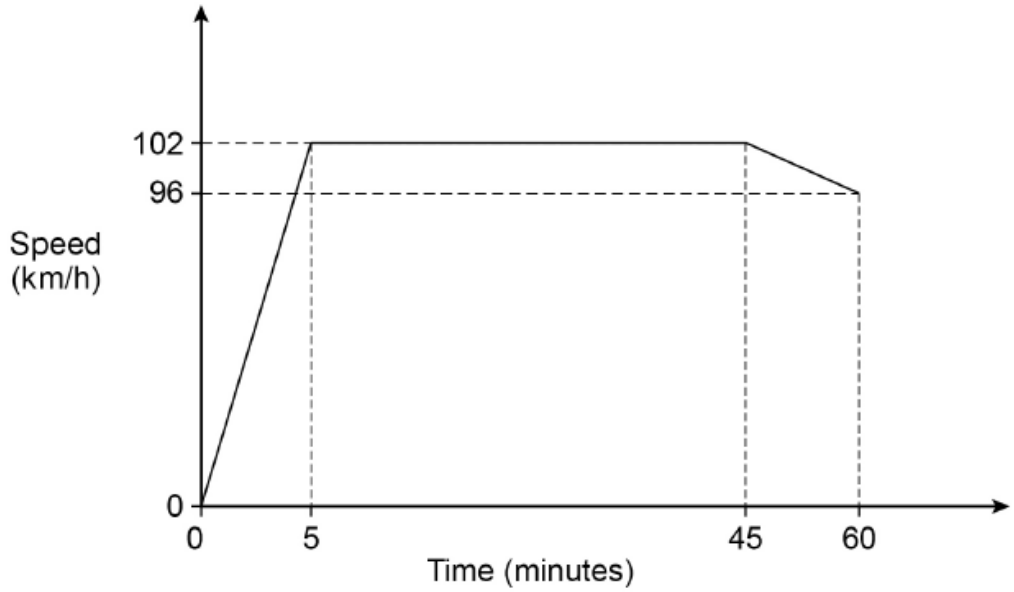
Draw the graph for values of x from –3 to 3

[3 marks]


y
30
25
20
15
10
5
−3
−2
−1
O
1
2
3
x
−5
−10
−15
−20
−25
−30

11. June/2019/Paper_3H/No.25

Here is a sketch of a speed-time graph for the first part of a journey.



The total distance for the journey is 130 kilometres.

How far is left to travel?

[4 marks]

Answer _____ km