

Name: _____

Date: _____

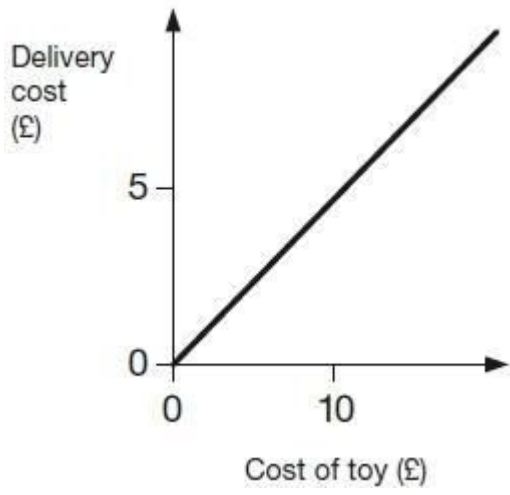
Line Graphs

Q1.

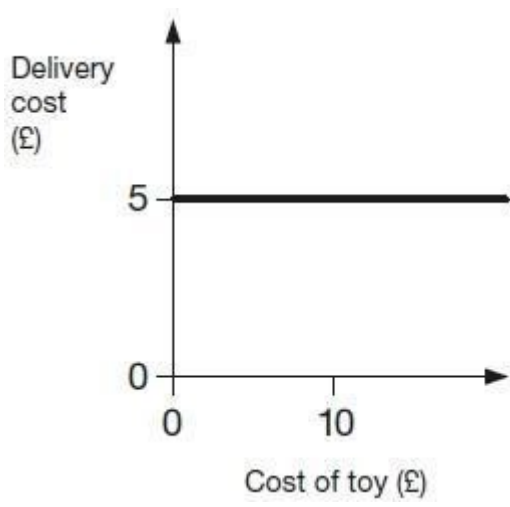
Two companies sell toys online. They charge to deliver.

Describe the delivery cost of the second company.

The first company is done for you.



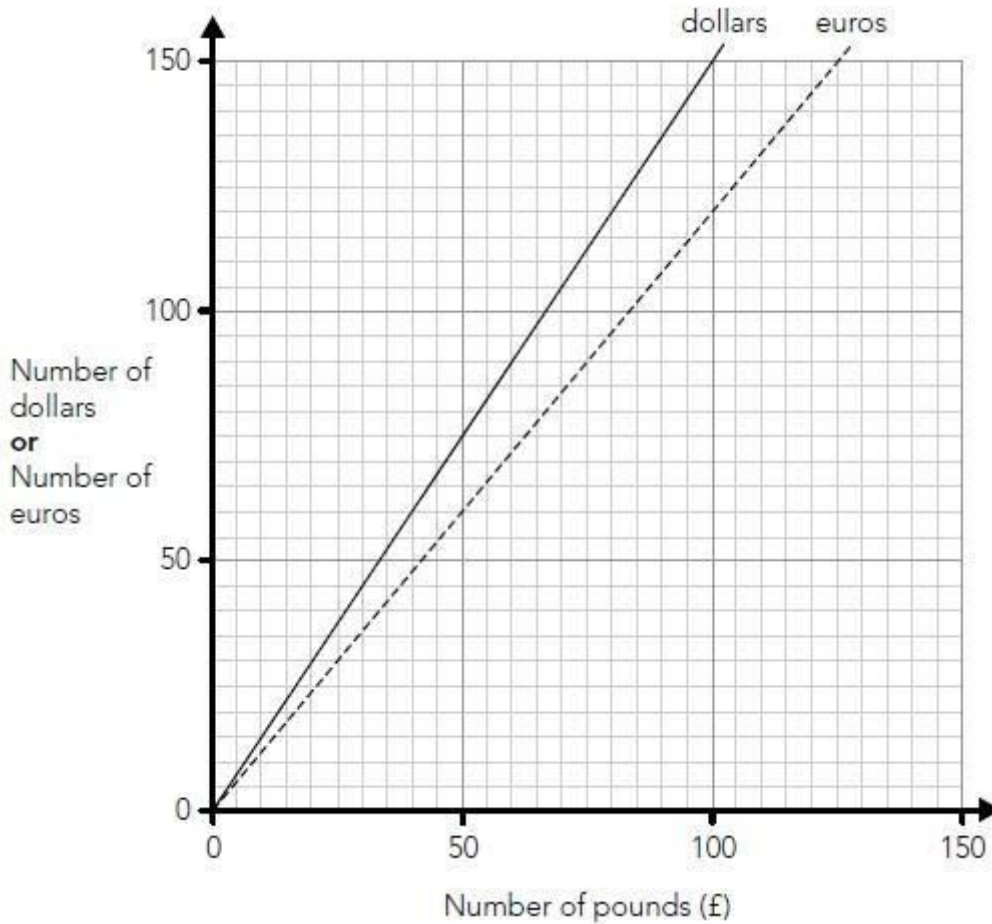
The more a toy costs, the more
the delivery costs.



1 mark

Q2.

Nik uses this graph to change between pounds (£), dollars and euros.



Use the graph to work out the missing numbers below.

The first one is done for you.

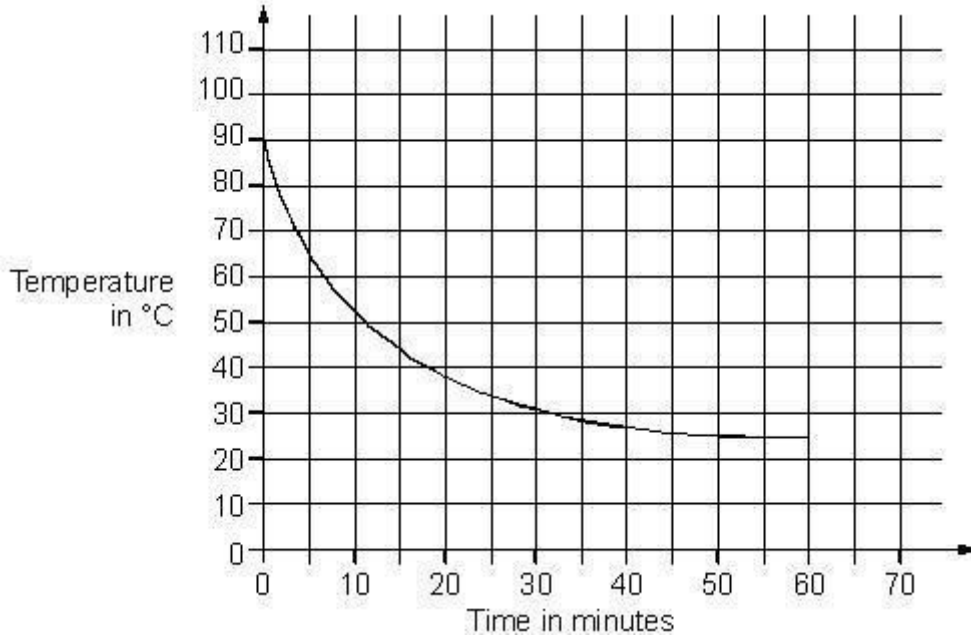
£70	is about the same as	84 euros
£70	is about the same as	_____ dollars
120 dollars	is about the same as	£_____
120 euros	is about the same as	_____ dollars

2 marks

Q3.

A hot liquid is left to cool in a science experiment.

This graph shows how the temperature of the liquid changes as it cools.



Read from the graph **how many minutes** it takes for the temperature to reach **40°C**

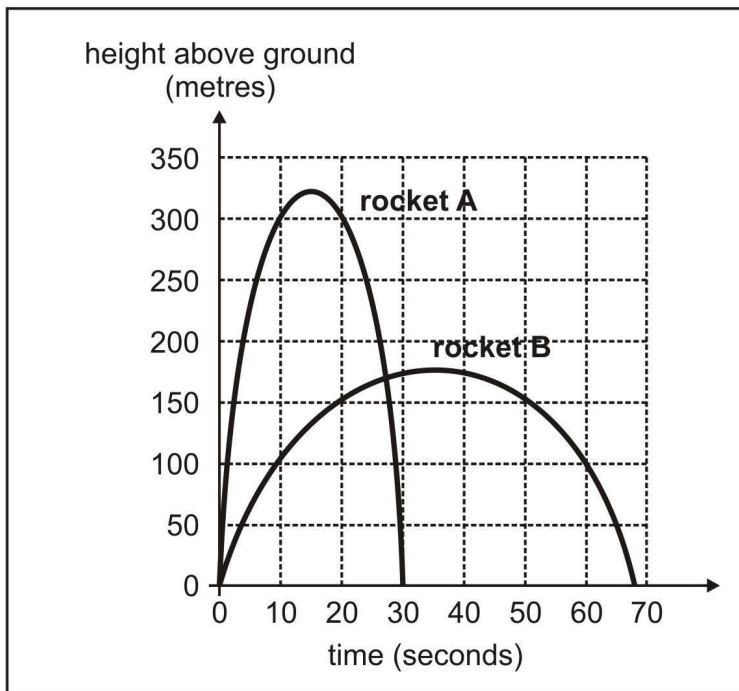
1 mark

Read from the graph **how many minutes** the temperature is **above 60°C**

1 mark

Q4.

Jim draws a graph to show how high two rockets go during their flight.



Estimate **how much higher** rocket A reaches than rocket B.

1 mark

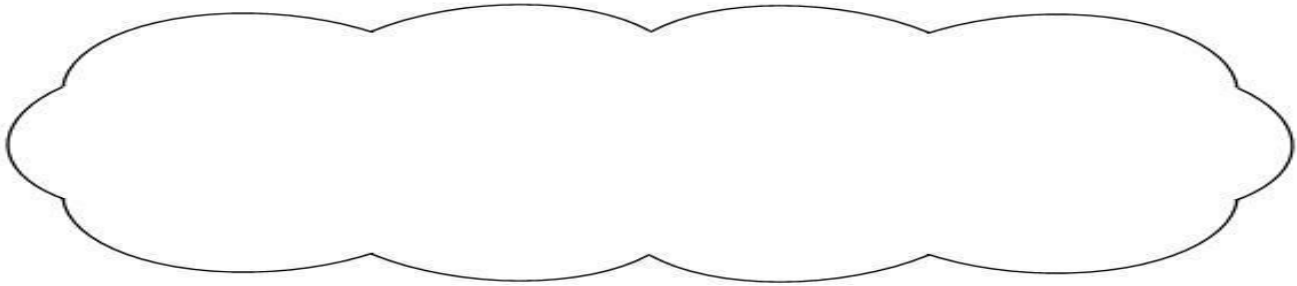
Estimate the **time** after the start when the two rockets are at the **same height**.

1 mark

Jim says,

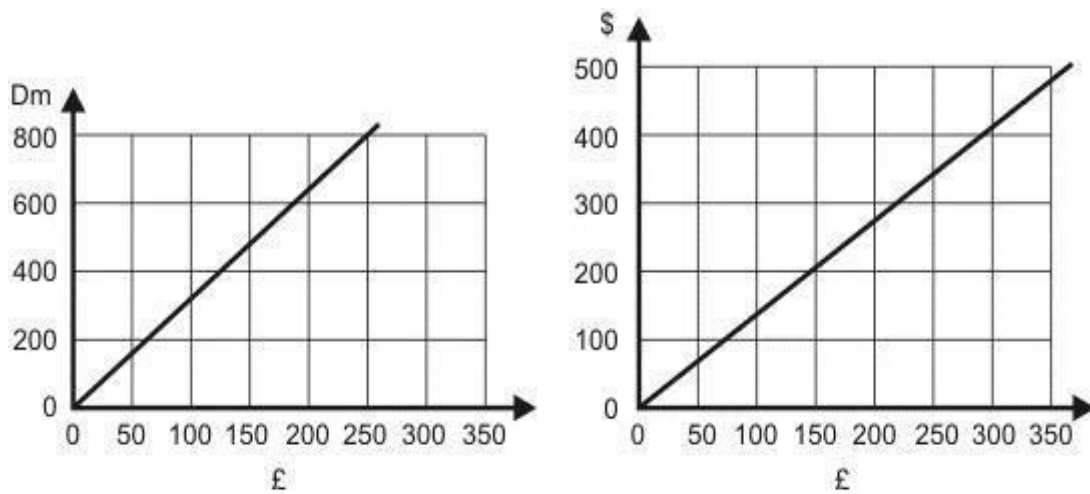
"The graph shows that rocket A was more than 200 m above the ground for about 23 seconds."

Explain how the graph shows this.



Q5.

These two graphs convert pounds (£) to Deutschmarks (Dm) and pounds (£) to dollars (\$).

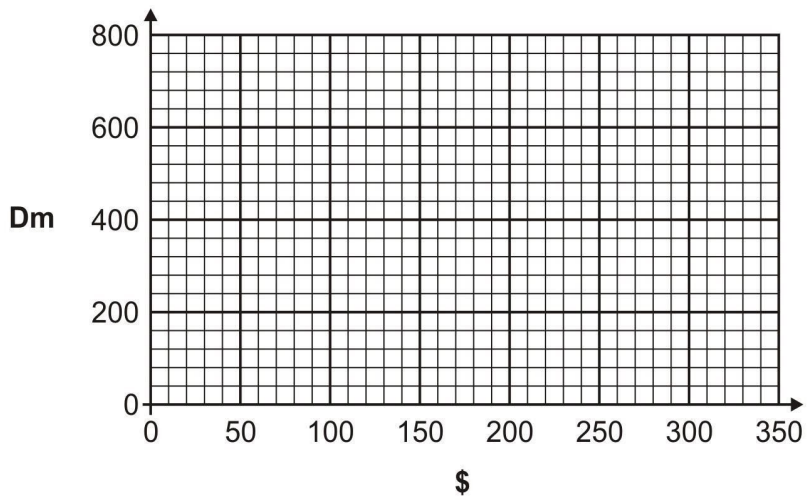


Use the graphs to complete the table.

number of £	approximate number of Dm	approximate number of \$
0	0	0
200		

2 marks

Use the information in your table to draw a conversion graph for \$ into Dm.

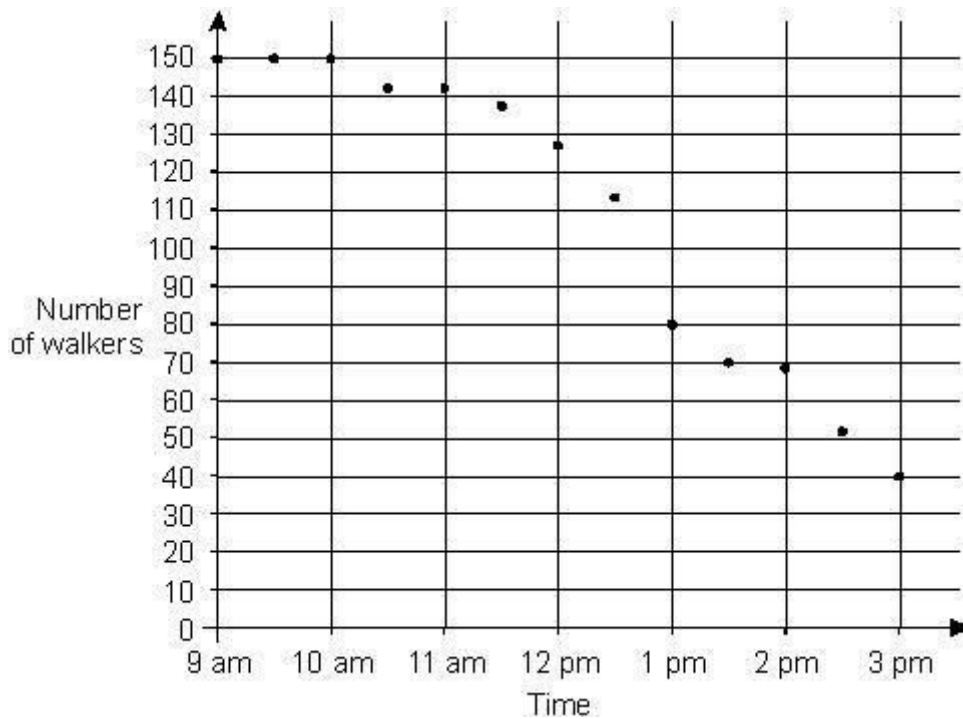


1 mark

Q6.

150 people take part in a walk.

This chart shows the number of people still walking at different times.



Use the chart to estimate the **time** when **two-thirds of the people** are still on the walk.

1 mark

What **percentage** of the people who started are **still on the walk at 3pm**?

Show
your
method

--

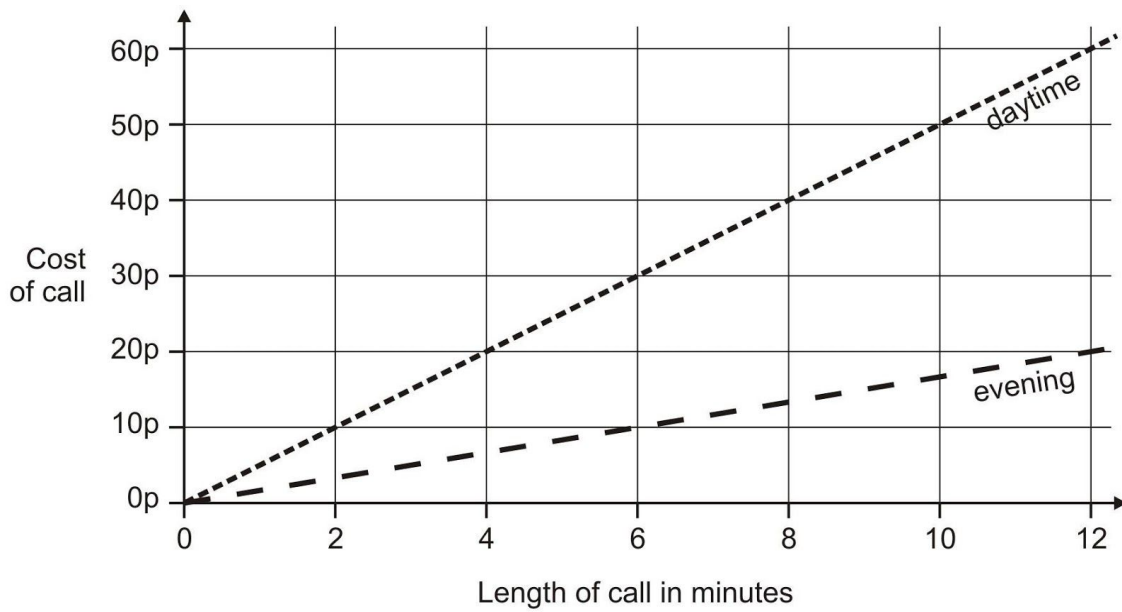
%

2 marks

Q7.

This graph shows the cost of phone calls in the daytime and in the evening.





How much does it cost to make a **9 minute** call in the **daytime**?

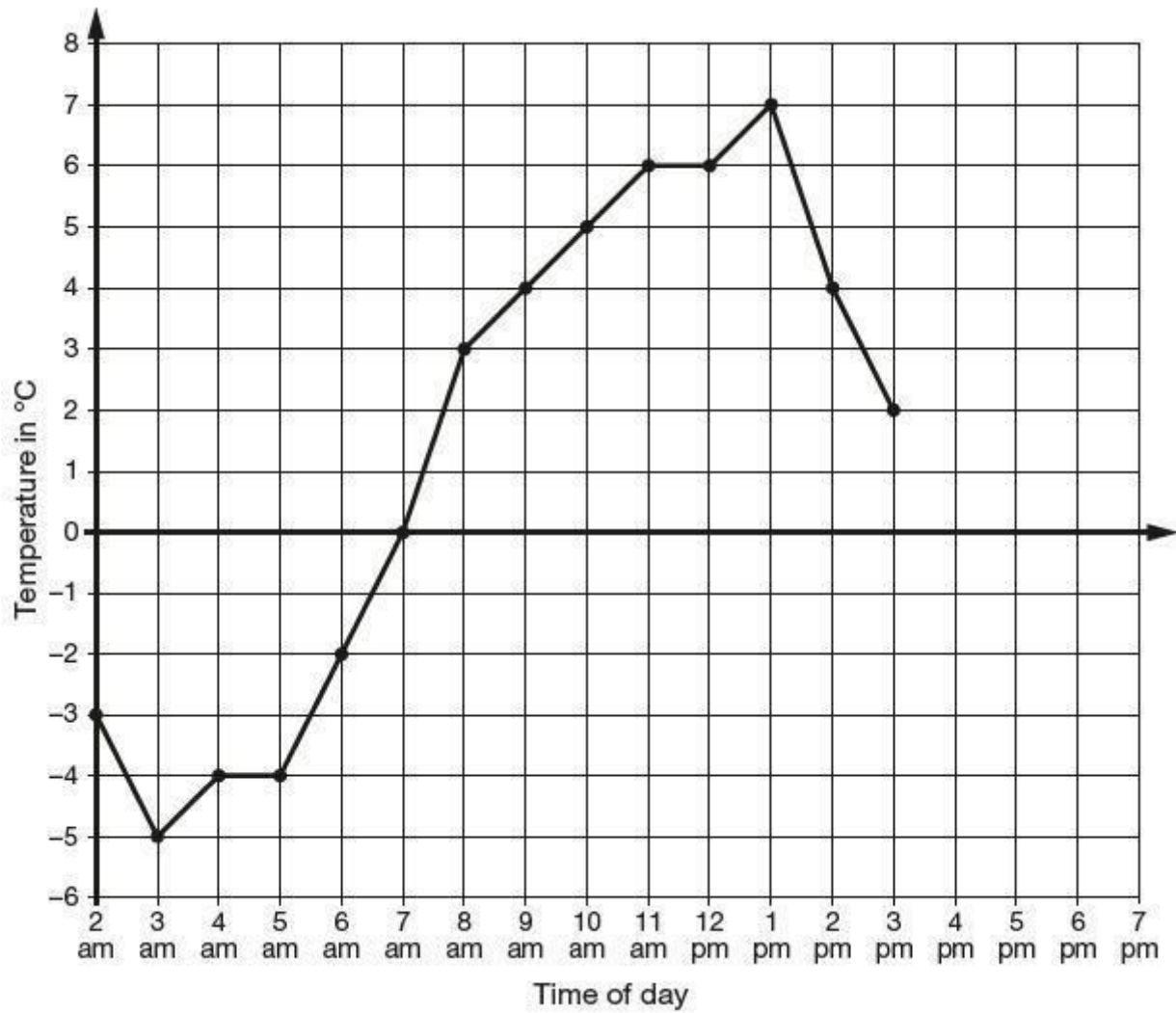
1 mark

How much **more** does it cost to make a **6 minute** call in the **daytime** than in the **evening**?

1 mark

Q8.

This graph shows the temperature in °C from 2 am to 3 pm on a cold day.



How many degrees **warmer** was it at 3 pm than at 3 am?

 °C

1 mark

At 6 pm the temperature was 4 degrees lower than at 3 pm.

What was the temperature at 6 pm?

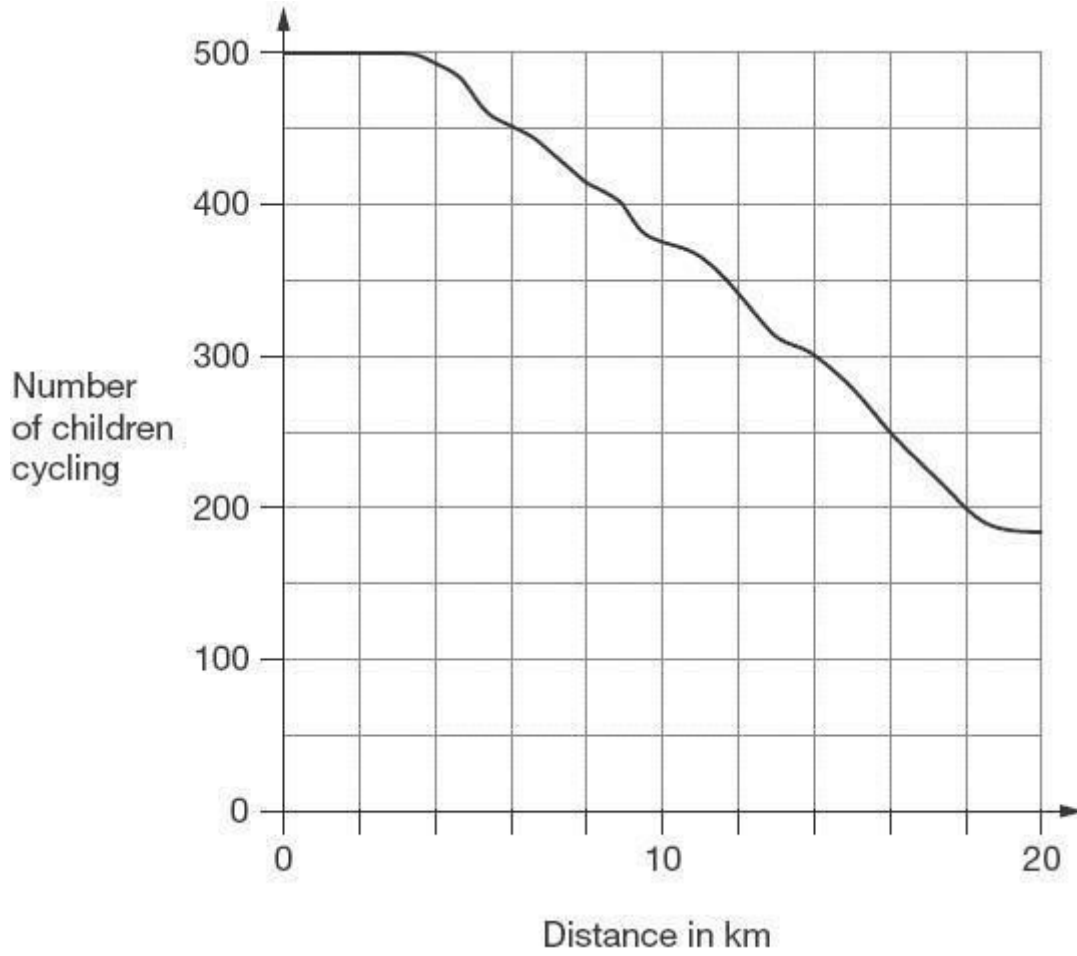
 °C

1 mark

Q9.

500 children started a 20 kilometre sponsored cycle ride.

This graph shows how far they cycled.



At what distance were exactly half of the children still cycling?

km

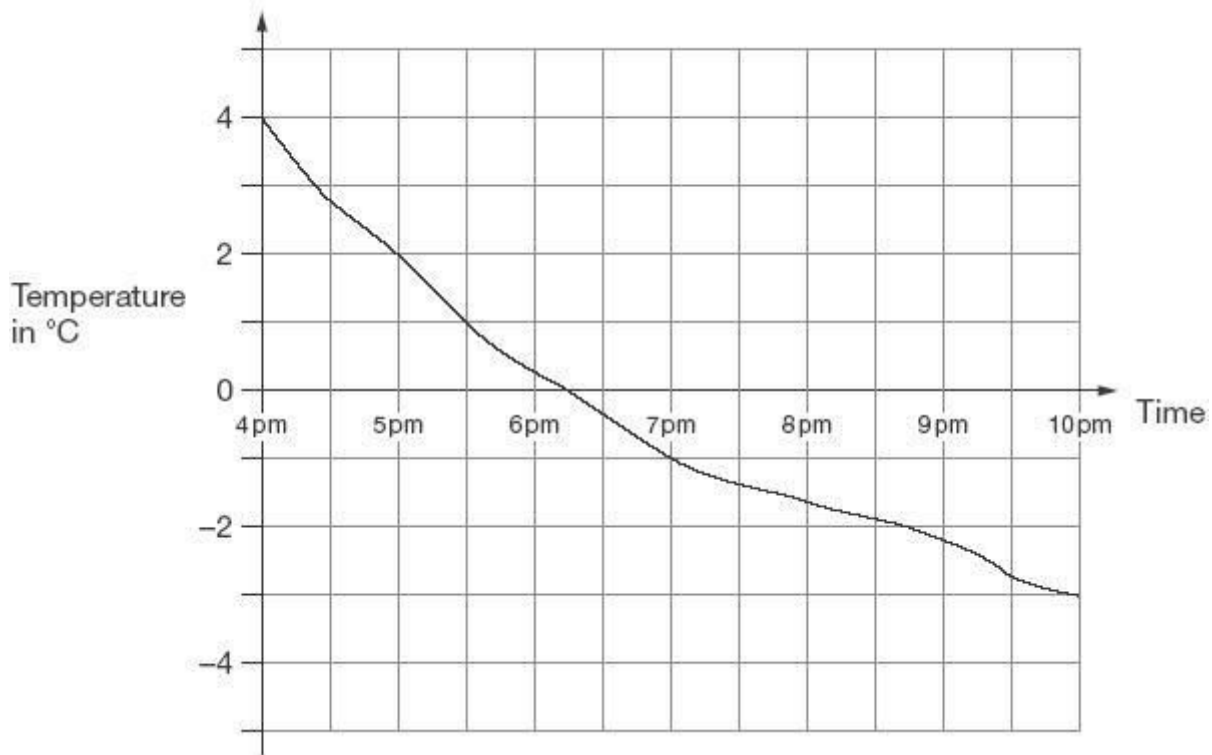
1 mark

Estimate how many children completed the 20 kilometre cycle ride.

1 mark

Q10.

This graph shows the outside temperature from 4 pm to 10 pm on a day in winter.



At what time was the temperature -2°C ?

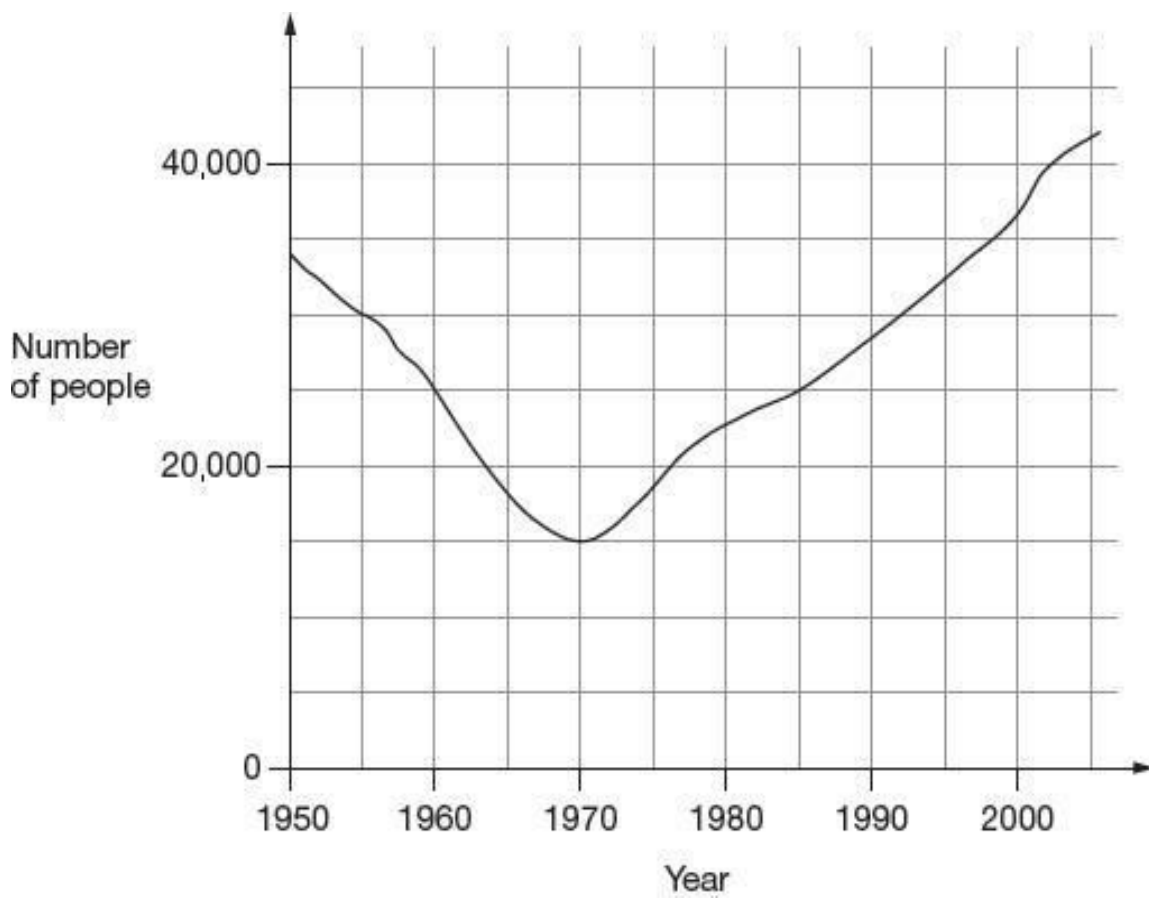
1 mark

How many degrees did the temperature drop from 5 pm to 7 pm?

1 mark

Q11.

This graph shows the number of people living in a town.



Look at the graph.

How many people lived in the town in 1985?

1 mark

In which year was the number of people the same as in 1950?

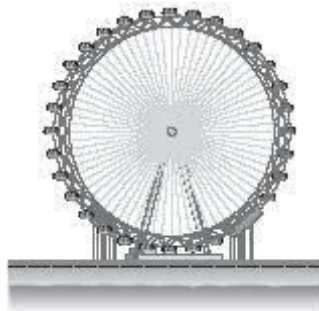
1 mark

Find the year when the number of people first went below 20,000

1 mark

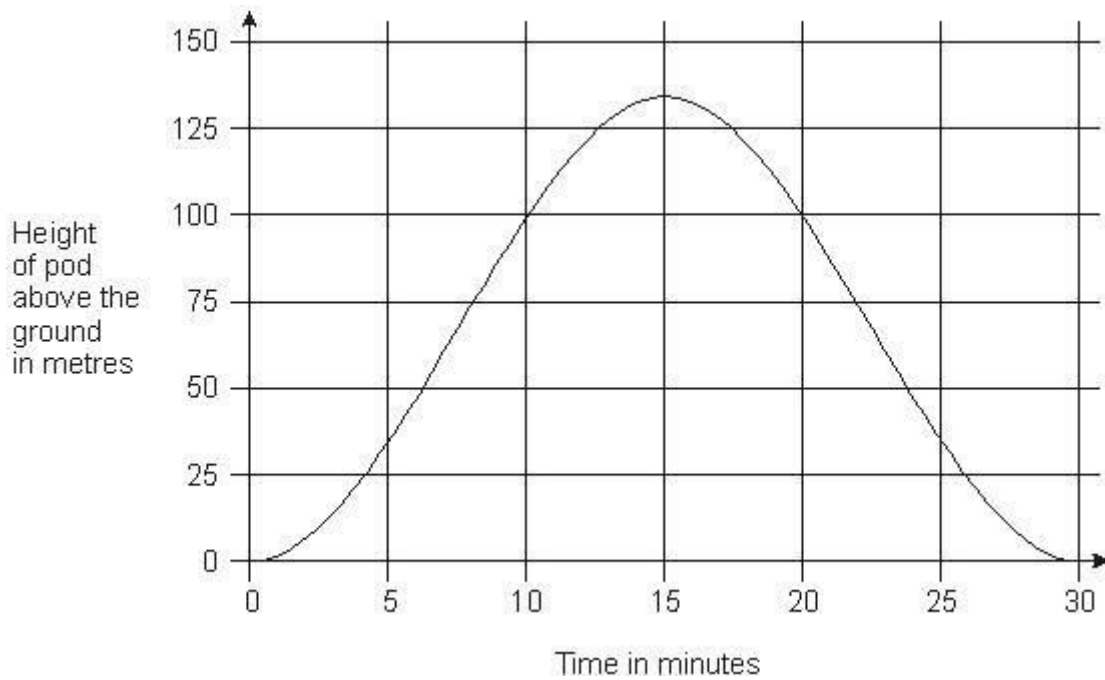
Q12.

The London Eye is a big wheel with pods to carry passengers.



It takes 30 minutes for the wheel to make a complete turn.

This graph shows the height of a pod above the ground as the wheel turns.



How long from the start does it take the pod to reach a height of 75 metres?

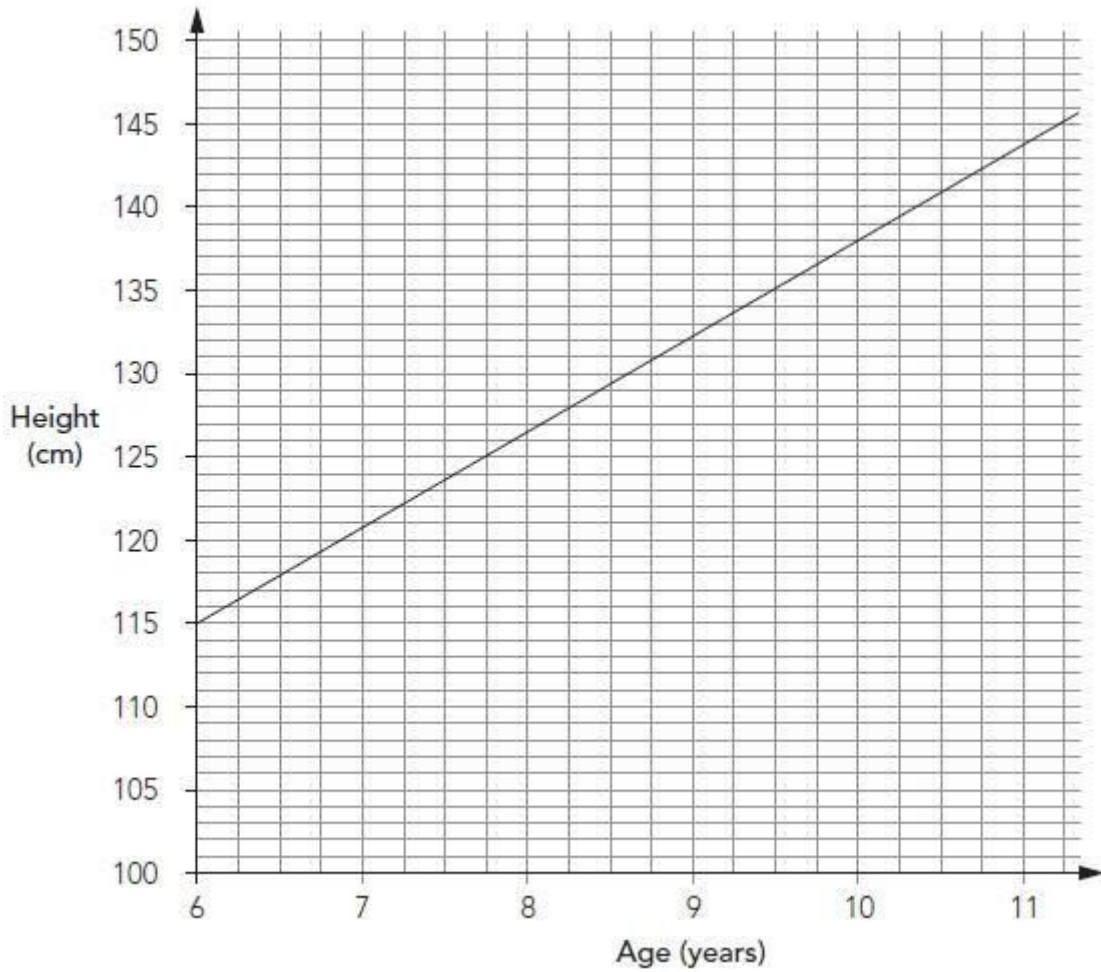
1 mark

How many metres above the ground is the pod at its highest point?

1 mark

Q13.

The graph shows the average heights of girls in the UK from age 6 – 11 years.



Emily is **1.38 m** tall.

She is the **average** height for her age.

How old is she?

1 mark

Zoe is $9\frac{1}{2}$ years old.

She is also 1.38 m tall.

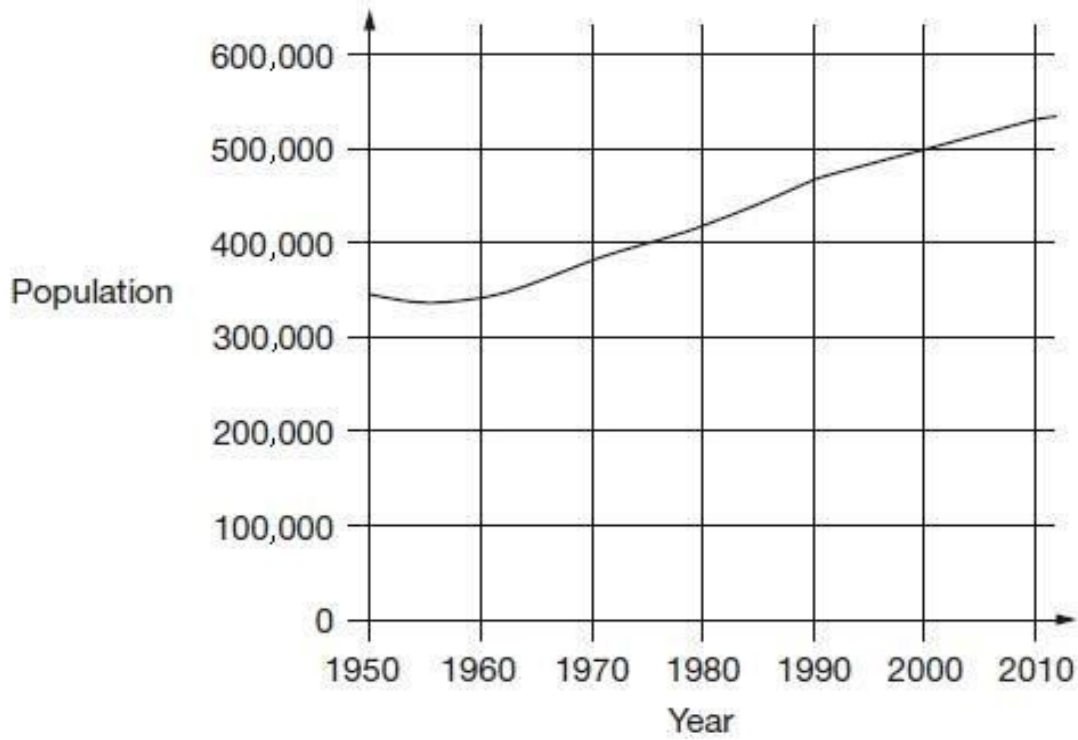
How much taller than average is she?

Give your answer in centimetres.

1 mark

Q14.

This chart shows the population of Cornwall from 1950 to 2010.



Look at the chart.

In which year did the population first reach 400,000?

1 mark

How much did the population increase from 1950 to 2000?

1 mark

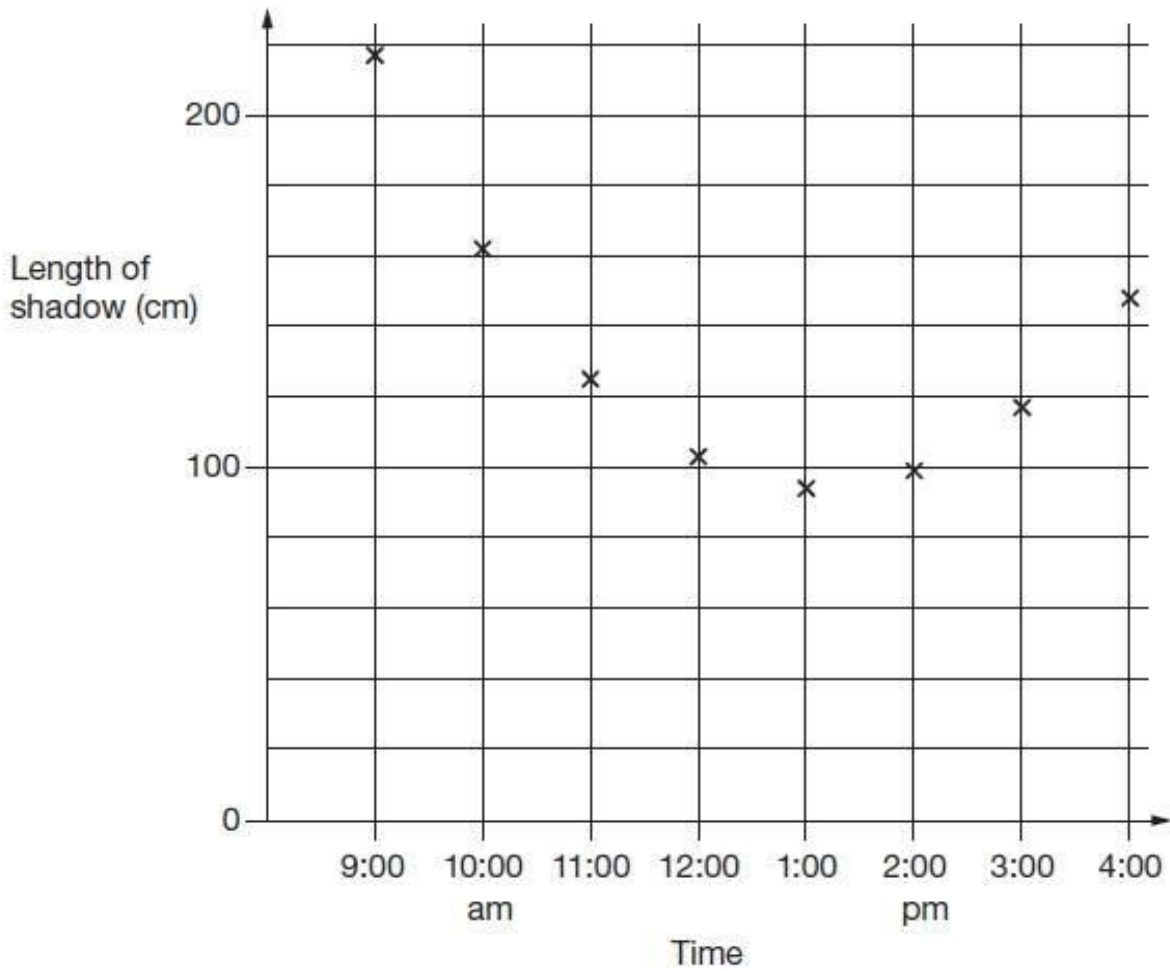
What was the population of Cornwall in 2010?

1 mark

Q15.

Kirsty measured the length of her shadow every hour on one sunny day.

She plotted her results on this graph.



Look at the graph.

Estimate the length of Kirsty's shadow at 3:30 pm.

cm

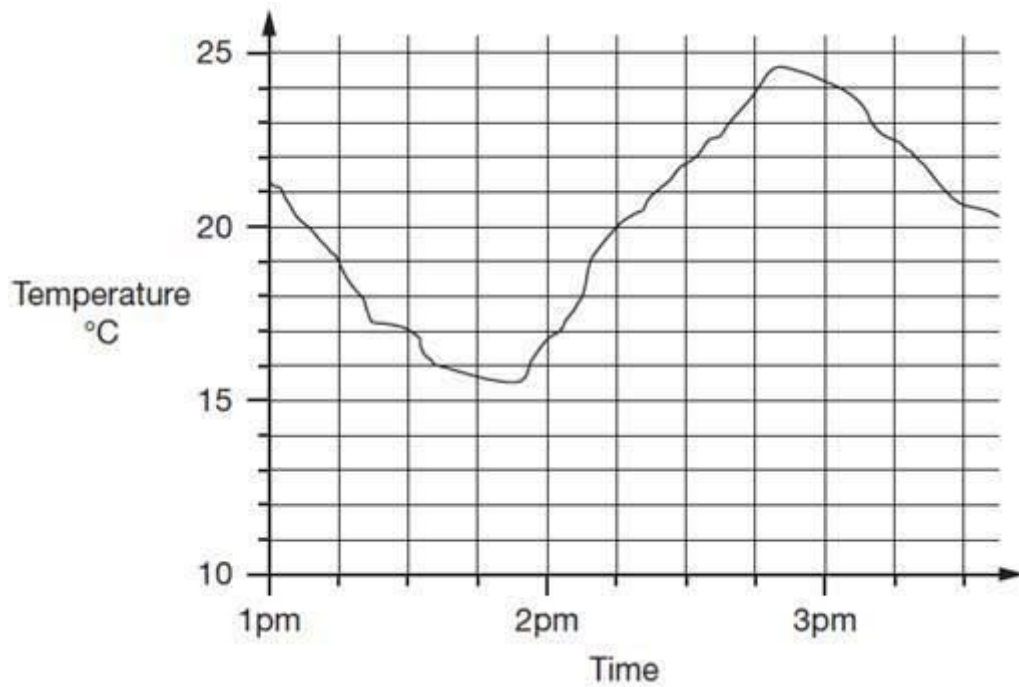
1 mark

Estimate a time when her shadow was 180 centimetres long.

1 mark

Q16.

This graph shows how the temperature changed in Liam's room one afternoon.



Estimate the temperature at 3:15pm.

1 mark

Estimate the time when the temperature was highest.

1 mark

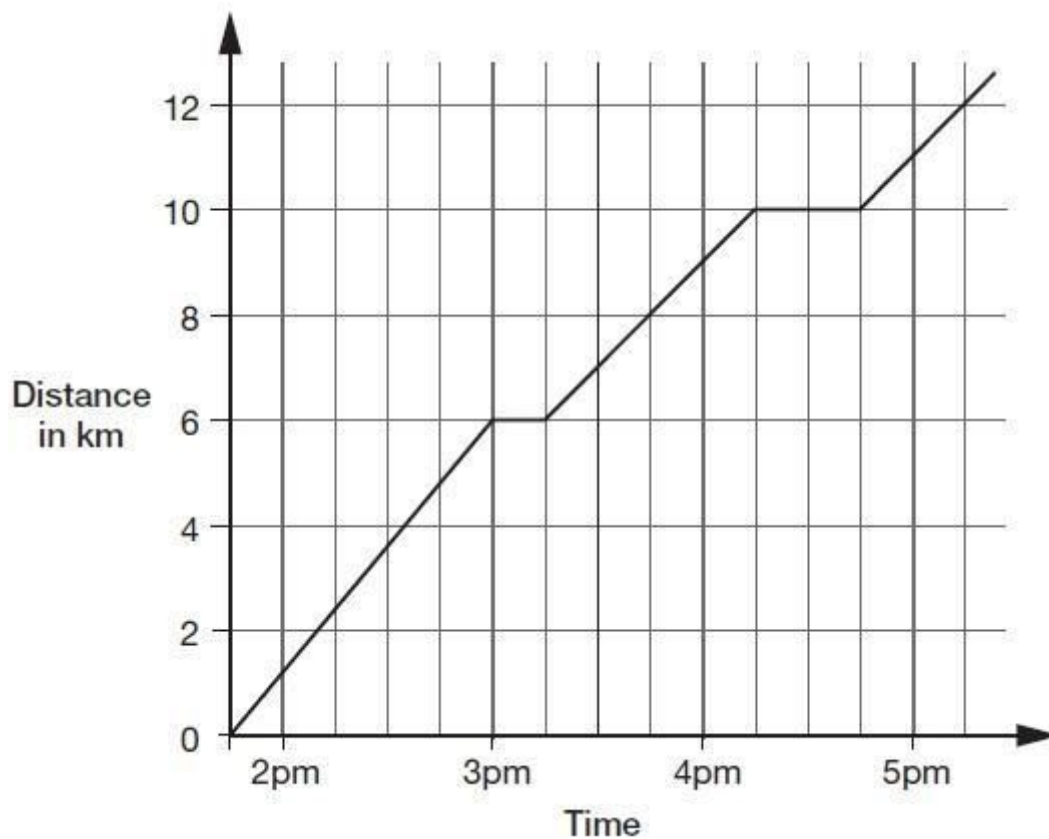
How much did the temperature change from 2pm to 2:30pm? Give your answer to the **nearest degree**.

degrees

1 mark

Q17.

This graph shows the distance Alfie and Chen walked in an afternoon. They started at 1:45pm and had two breaks.



How many kilometres did they walk **between** the first and second breaks?

km

1 mark

At what time did Alfie and Chen start their second break?



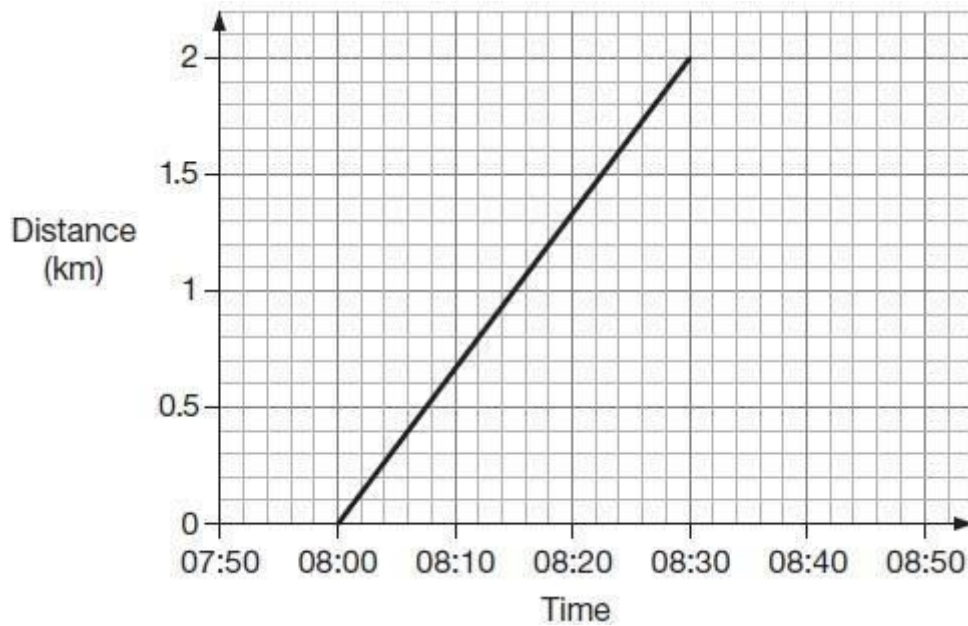
1 mark

Q18.

Alfie and his brother walked from home to their school.

Their school is 2 kilometres from home.

The graph shows information about **Alfie's** journey.



- (a) How does the graph show that Alfie walked at a **constant speed** for all of his journey?

1 mark

- (b) Alfie's brother left home **10 minutes before** Alfie.

He arrived at school **20 minutes after** Alfie.

He walked at a **constant speed** for all of his journey.

At what time did Alfie overtake his brother?

1 mark

Mark schemes - Line Graphs

Q1.

Gives a correct description that indicates the delivery cost is constant, eg:

- The delivery cost is always £5
- The cost is always £5 no matter how much the toy costs
- Delivery stays the same as the cost of toy increases

Accept minimally acceptable explanation, eg:

- *It is £5*

Accept omission of the actual delivery cost, eg:

- *It always costs the same*
- *The cost is the same*
- *The cost of the toy does not affect the delivery cost*
- ! *Condone correct response with the pound sign omitted, eg:*
- *It is always 5*
- ! *Condone explanations which refer to toys costing up to £20*

Do not accept incomplete or ambiguous explanation, eg:

- *They are equal amounts*

[1]

Q2.

105 ± 1

then

80 ± 1

1

150 ± 1

1
U1

[2]

Q3.

(a) Answer in the range 18 minutes to 19 minutes inclusive.

1

(b) Answer in the range 6 minutes to 7½ minutes inclusive.

1

[2]

Q4.

- (a) Any answer in the range 145m to 175m inclusive. 1
- (b) A time in the range 27 to 29 seconds inclusive. 1
- (c) Evidence of awareness that the time interval between the points where the 200m line cuts the graph for rocket A has been used, eg:
- “He could have checked when the rocket went above 200m and when it went under 200m and worked out the time between.”
 - “Look how high it goes until it gets to 200m then look along the horizontal line until it drops below 200m.”

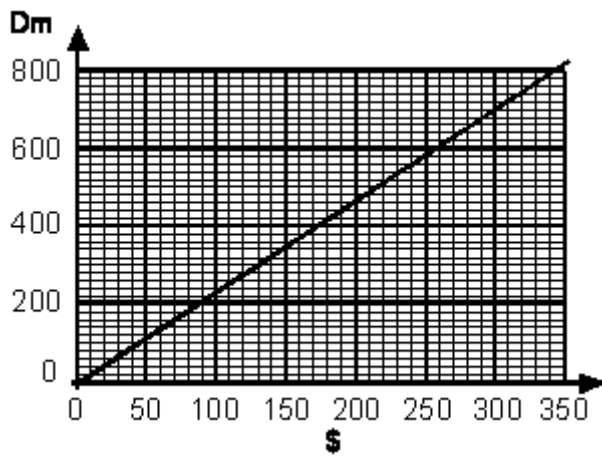
An appropriate drawing on the graph, identifying the intersection of the 200m line with the curve is acceptable a part of explanation, eg, award mark for:

- **“Subtract the two dots”** if dots are marked indicating correct intersections.
Do not accept vague statements or ones which only repeat information, eg:
 - **“You can draw the graph then draw the things then work it out.”**
 - **“Because on the graph the rocket is above 200m for 23 seconds.”**
- 1

[3]

Q5.

- (a) Number of DM in the range 630 to 670, **inclusive**. 1
- (b) Number of \$ in the range 270 to 280, **inclusive**. 1
- (c) Correct drawing of line **through origin** and point plotted according to answers given in (a) and (b), eg:



To be awarded the mark, the point must be correctly plotted (within range described below) **AND** the line must pass through both the origin and the point. The point must be plotted within $\pm 20DM$ and $\pm \$10$ of the answers given in (a) and (b)

1

[3]

Q6.

(a) Answer in the range 12:30pm to 1:00pm exclusive.

Accept answers with or without 'pm'.

1

(b) Award **TWO** marks for the correct answer of $26\frac{2}{3}\%$ **OR** 26.6%

Accept 26.6% **OR** 26.7% **OR** 26.6 ... % **OR** 27%

Accept for **ONE** mark 26%

If the answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg

$$40 \div 150 \times 100$$

Answer need not be obtained for the award of the mark.

Up to 2

[3]

Q7.

(a) Answer in the range 44p to 46p inclusive.

1

(b) 20p

Accept £0.20p **OR** £0 20

Do not accept 0.20p **OR** £20p

1

[2]

Q8.

(a) 7

1

Do not accept -7 or 7-

(b) -2

1

Do not accept 2-

[2]

Q9.

(a) 16

1

(b) A whole number in the range 180 to 190 inclusive

1

[2]

Q10.

(a) Answer in the range of 8:40 pm to 8:50 pm inclusive

The answer is a specific time

1

(b) 3

Do not accept -3

1

Q11.

(a) 25000

Accept answers in the range 24500 to 25500 inclusive.

1

(b) 1996 **OR** 1997 **OR** 1998

1

(c) 1963 **OR** 1964

1

[3]

Q12.

(a) Answer in the range 7.5 minutes to 9 minutes exclusive.

Accept an answer in the range 21 minutes to 22.5 minutes exclusive.

1

(b) Answer in the range 130 m to 140 m inclusive.

1

[2]

Q13.

(a) 10 years old

1

(b) 3 cm

Accept answers in the range of 2.9 – 3.1 inclusive

! Change of unit, eg 0.03 m

Condone, provided cm is replaced by m

1

[2]

Q14.

(a) 1974 **OR** 1975 **OR** 1976

1

(b) A whole number answer in the range 130 000 to 180 000 **inclusive**.

1

(c) A whole number answer in the range 510 000 to 550 000 **exclusive**.

*Do not accept 510 000 **OR** 550 000*

1

[3]

Q15.

(a) Answer in the range 125 cm inclusive to 140 cm exclusive

Do not accept 140 cm.

1

(b) Answer in the range 9:30 am to 9:50 am inclusive

Accept an answer in the range 4:30 pm to 4:50 pm inclusive.

1

[2]

Q16.

(a) Accept answers in the range 22.2 to 22.8 exclusive.

Do not accept 22.2 or 22.8

1

(b) Accept answers in the range 2:48pm to 2:52pm inclusive.

The answer is a specific time.

1

(c) 5

1

[3]

Q17.

(a) 4 km

1

(b) 4:15pm

The answer is a specific time

1

[2]

Q18.

Gives a correct interpretation of the graph, eg:

- It is a straight line
- It goes up steadily
- The angle of the line stays the same
- The gradient of the line is constant

Accept minimally acceptable explanation, eg:

- *It is straight*
- *It doesn't bend*
- *It is a diagonal*

Do not accept incomplete or ambiguous explanations that do not sufficiently imply a constant speed and /

or do not demonstrate the relationship holds for the entire graph, eg:

- *The line goes straight up*
- *It is not wobbly*
- *It is level*
- *Every 5 mins he walks the same distance*
- *He walks 1km in the first 15 mins and 1km in the second 15 mins*

! Values read from graph

Accept, provided it is clear the relationship holds for the entire graph.

*Values should be accurate within $\pm 0.1\text{km}$ and /
or ± 2 minutes, eg:*

- 0.7km every 10 minutes*
- Every 7.5 minutes he walks about half a km*

! Calculation of kilometres per hour

Accept values in the range 3.7 to 4.3km per hour inclusive.

1

(b) 08:10

! Accept values between 08:09 and 08:11 inclusive

! Time

1

[2]