Paper 2 – calculator allowed

| First name	
Middle name	
Last name	
Date of birth	Day Month Year
Please circle one	Boy Girl
Year group	
School	

YOU MAY NEED

- Pens, pencils and a rubber.
- A ruler.
- A pair of compasses.
- A protractor or angle measurer.
- Tracing paper.
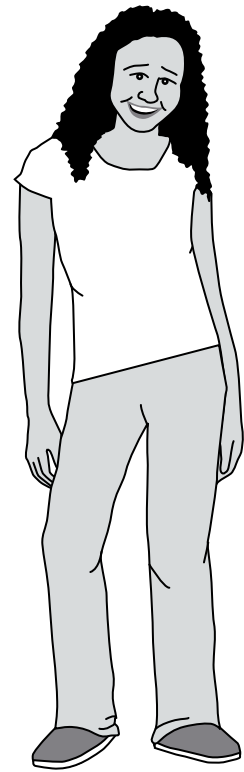- A mirror.
- A calculator.

REMEMBER

- You have 30 minutes to complete this test paper.
- Try to answer all the questions.
- Write all your answers and working on the test paper – do not use any rough paper. Marks may be awarded for working.
- Check your work carefully.
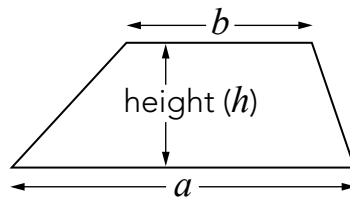- Ask your teacher if you are not sure what to do.
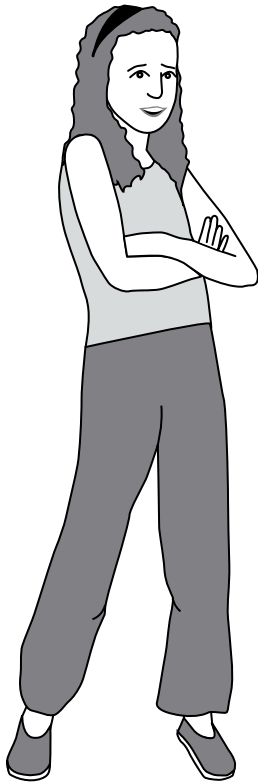
Lisa
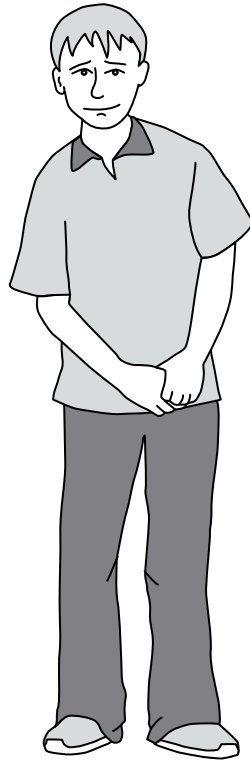
Nik

Kemi

You might need to use this formula.

Trapezium

$$\text{Area} = \frac{1}{2}(a + b)h$$

b

height (h)

a

Instructions

You **may** use a calculator to answer any questions in this test paper.

- Work as quickly and as carefully as you can.

- You have 30 minutes for this test paper.

- If you cannot do one of the questions, **go on to the next one**.
  You can come back to it later, if you have time.

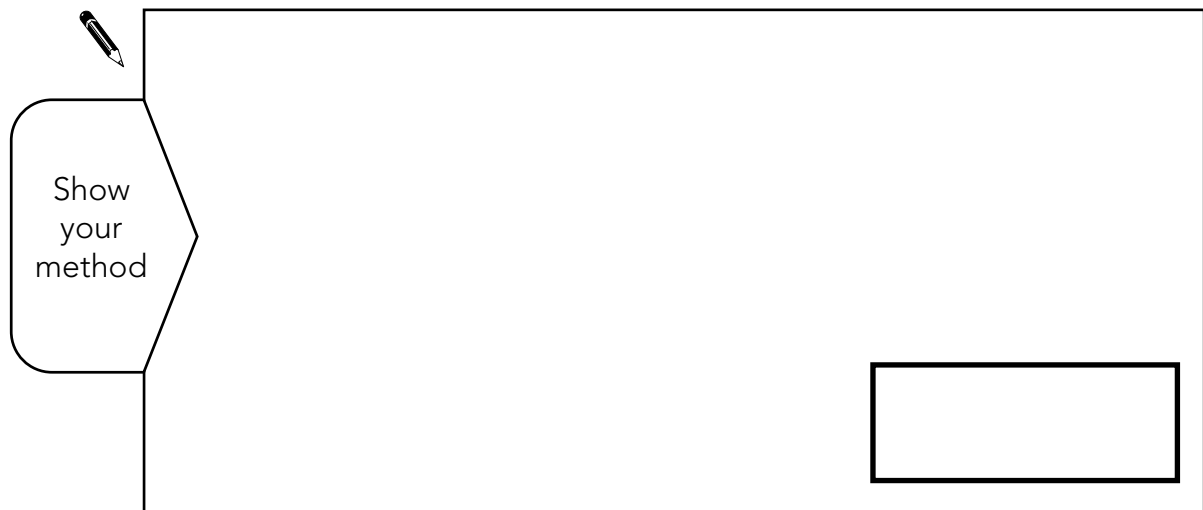- If you finish before the end, **go back and check your work**.

Follow the instructions for each question carefully.

This shows where you need to put the answer.

If you need to do working out, you can use any space on a page.

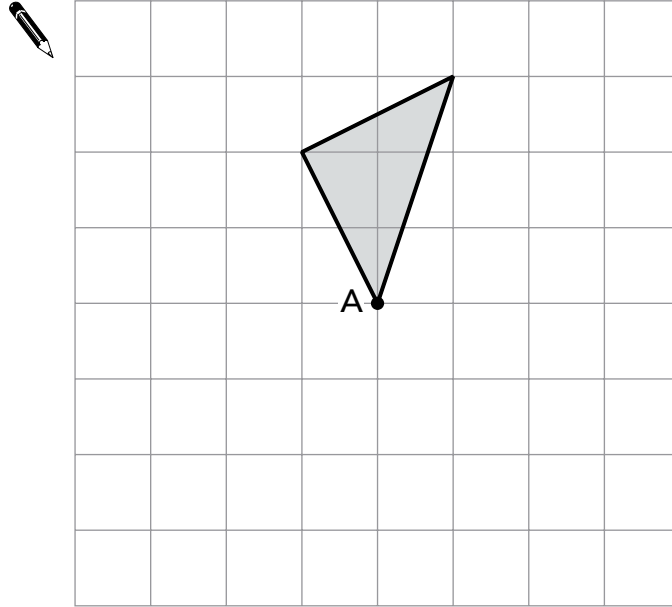**Some questions have an answer box like this:**

Show
your
method

For these questions you may get a mark for showing your method.

1   Here is a shaded triangle on a square grid.

Draw the new position of the triangle when it is **rotated 180°** about point A.

(1 mark)

2   The rule to get each number in a sequence is

> **subtract** the previous number from 100, then **divide** the answer by 2

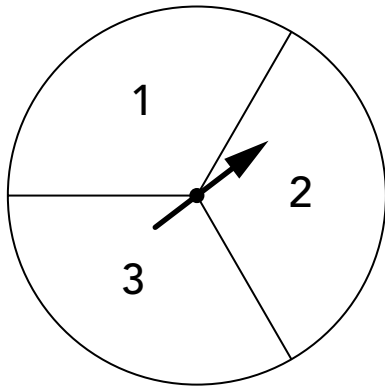Here is part of the sequence.

Write the two missing numbers.

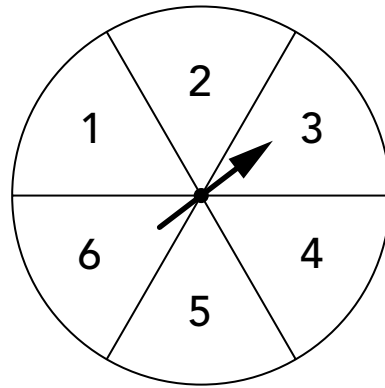|	40 30 35 32.5 33.75	

(2 marks)

Here are two spinners divided into equal parts.

A

B

Kemi spins the pointers once to get a score on each spinner.

Put one tick (✔) in each row to complete the table below.

One row is done for you.

	more likely on A	more likely on B	equally likely on A or B
a score less than 4	✔		
an even number			
a score of 2			
a score greater than 1			

(2 marks)

4 A farmer has £1200 to buy apple trees and pear trees.

Apple trees cost £24.75 each.

Pear trees cost £12.50 each.

He buys 35 apple trees.

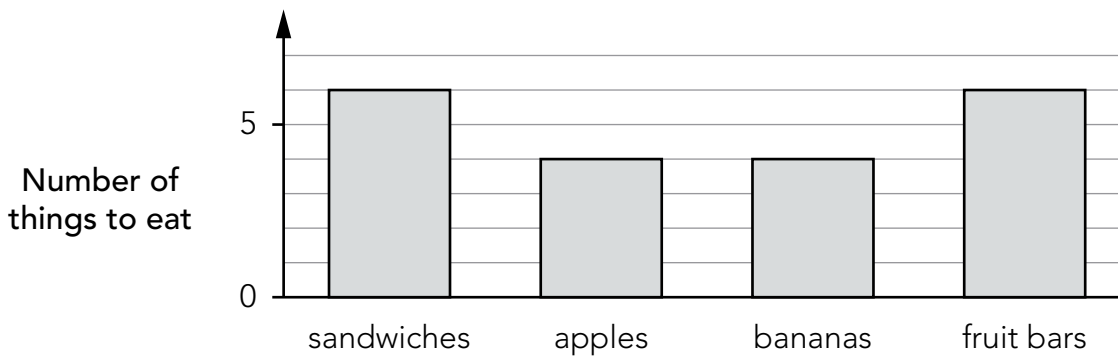How many pear trees can he buy with the money he has left?

Show your method

(2 marks)

This table shows the number of things to eat in **five** children's lunch boxes.

	sandwiches	apples	bananas	fruit bars
Lisa	1	2	0	2
Jack	2	0	2	1
Kemi	1	1	0	2
Nik	1	2	1	0
Ben	2	1	2	1

Here is a graph of the information for **four** of the children.

Number of
things to eat

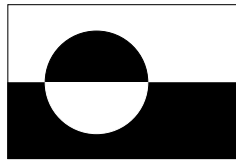Which child's information is missing from the graph?
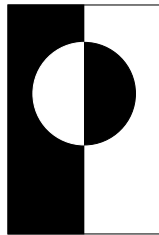
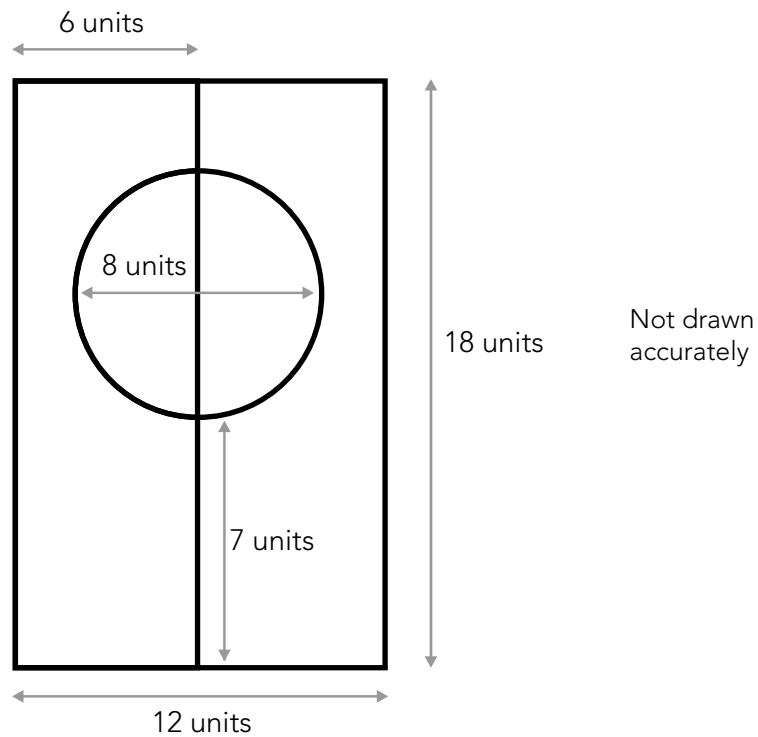Explain how you know.

(1 mark)

6 The flag of Greenland is a rectangle with a circle drawn inside.

Here is the same flag rotated.

The sketch gives the information you need to draw the flag.

Not drawn accurately

The question is on the next page.

Use the correct mathematical equipment to **draw accurately** the flag of Greenland.

Some of the flag is drawn for you.
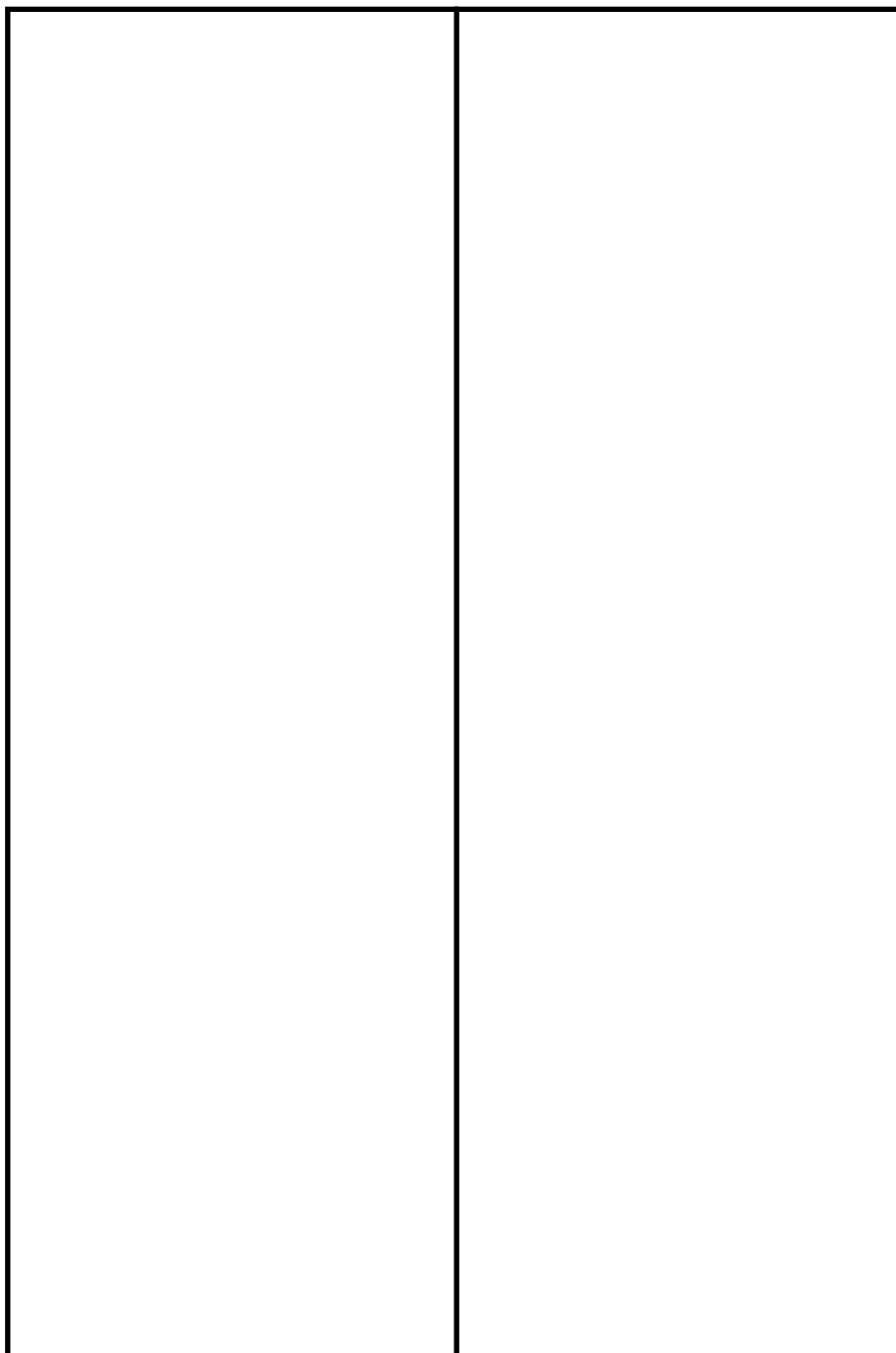
(3 marks)

7   The diagram shows a square of side length 12cm.

Inside the square are 8 congruent trapeziums and a shaded square.

Not full size

12cm

The **side length** of the shaded square is **6cm**.

What is the area of one of the trapeziums?

Show your method

cm^2

(3 marks)

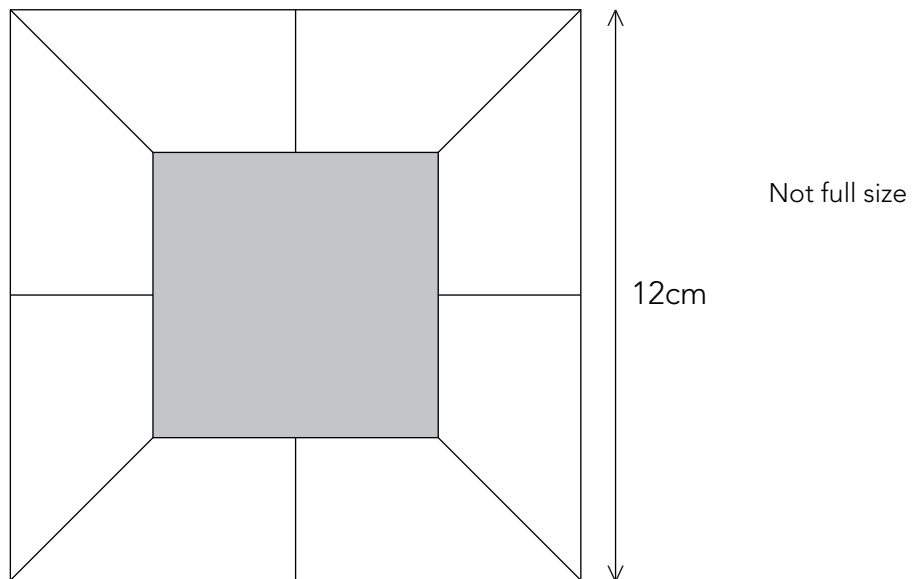**8** Work out the missing numbers below.

The first one is done for you.

The first │ 5 │ multiples of │ 4 │ **add to 60**

(because 4 + 8 + 12 + 16 + 20 = 60)

The first │ 3 │ multiples of │ │ **add to 60**

(1 mark)

Now use **different** numbers to complete the sentence below.

The first │ │ multiples of │ │ **add to 60**

(1 mark)

9

Here are three questions and answers about bananas.

On average, how much does each person pay for bananas in supermarkets?
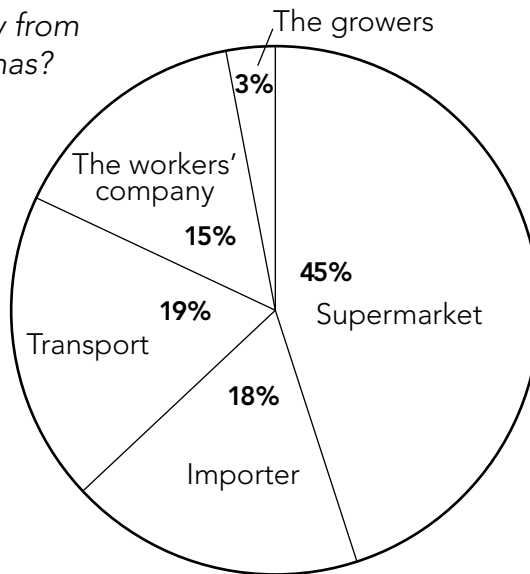
Answer: **56p per kg**

On average, what quantity of bananas does each person eat in one year?

Answer: **10kg**

Who gets money from the sale of bananas?

Answer:

The growers
3%

The workers' company
15%

19%

Transport

18%

Importer

45%

Supermarket

How much of the money each person pays for bananas in one year goes to the **growers**?

Show your method

p

(2 marks)

10 Lisa is using trial and improvement to find a solution to this equation.

$$x^2 - 3x = 1$$

Here are her first few trials.

Complete the missing information.

When $x = $ **3**, $x^2 - 3x = $ _____0_____ , so this value of x is too _____small_____

When $x = $ **4**, $x^2 - 3x = $ _____ , so this value of x is too _____ *(1 mark)*

When $x = $ **3.5**, $x^2 - 3x = $_____ , so this value of x is too _____ *(1 mark)*

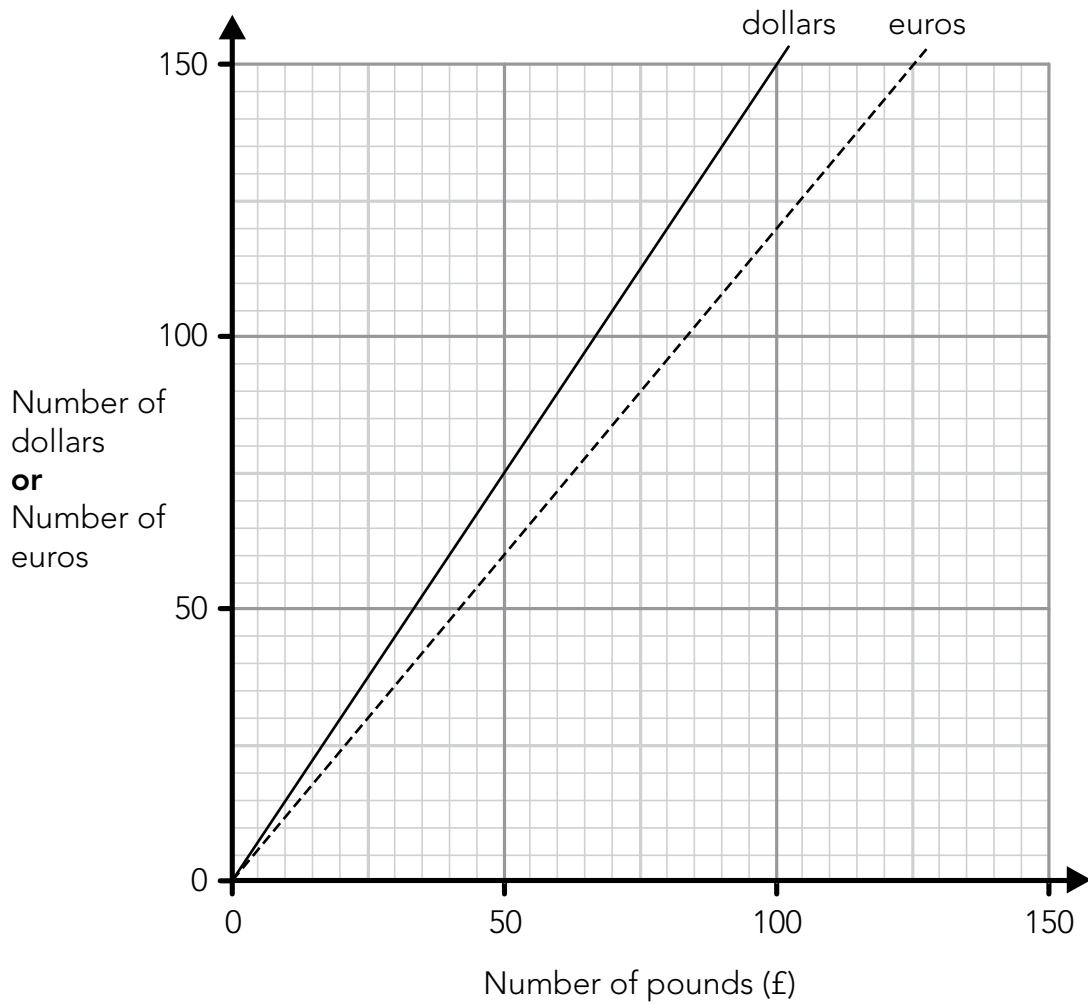What value of x should Lisa try next?

$x = $ _____

Explain why you chose that value.

(1 mark)

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

The questions are on the next page.

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 |

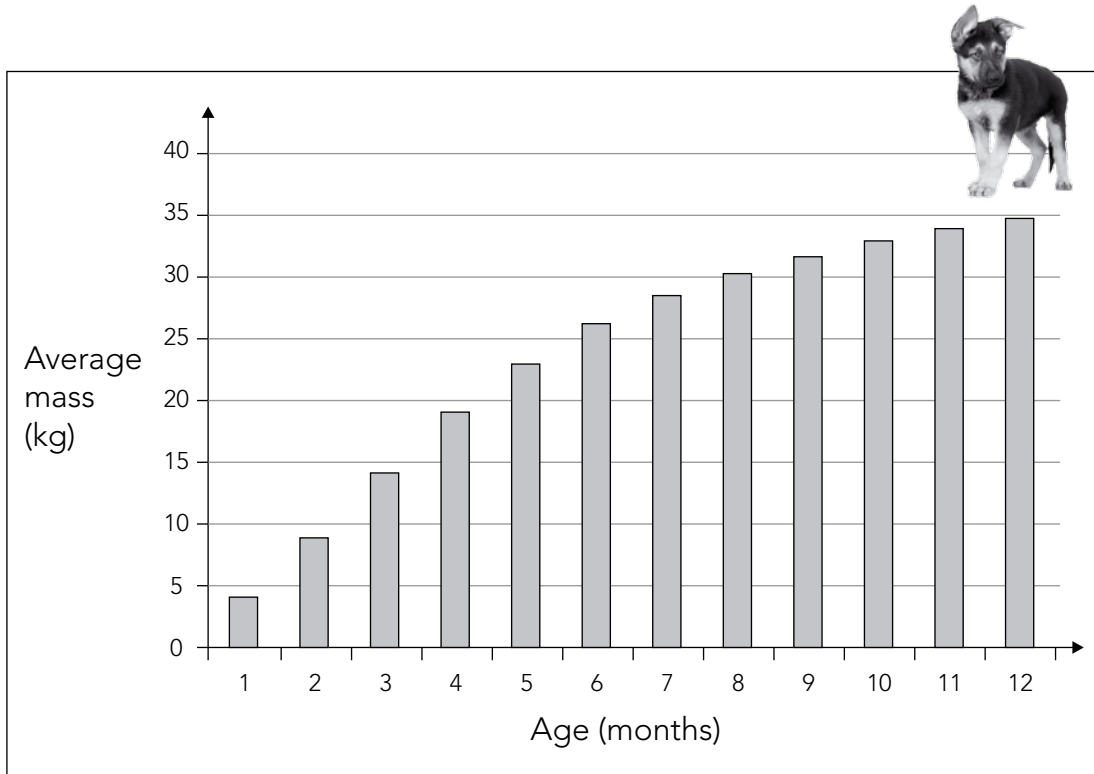| 120 dollars | is about the same as | £ _____ |

(1 mark)

| 120 euros | is about the same as | _____ dollars |

(1 mark)

12 Here are two pieces of information about dogs called German Shepherds.

The average mass of an **adult** German Shepherd is about 35kg.

Use **both** pieces of information to summarise how German Shepherd dogs grow.

_____

_____

_____

_____

_____ *(2 marks)*

END OF TEST

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