MATHEMATICS TEST

LEVEL 6 TESTS

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.
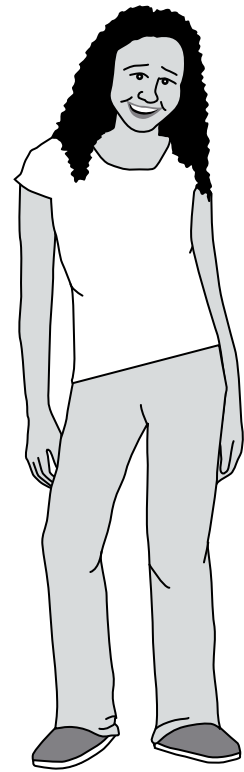- Tracing paper.
- A mirror.
- A calculator.

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.
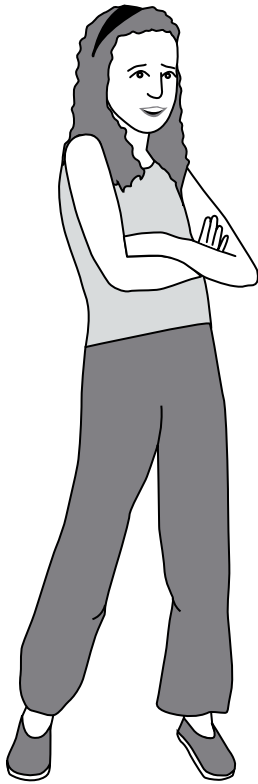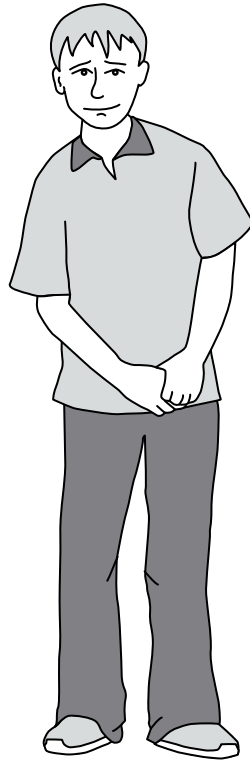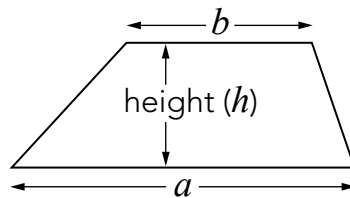
Lisa   Nik   Kemi

You might need to use this formula.

Trapezium

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

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**.

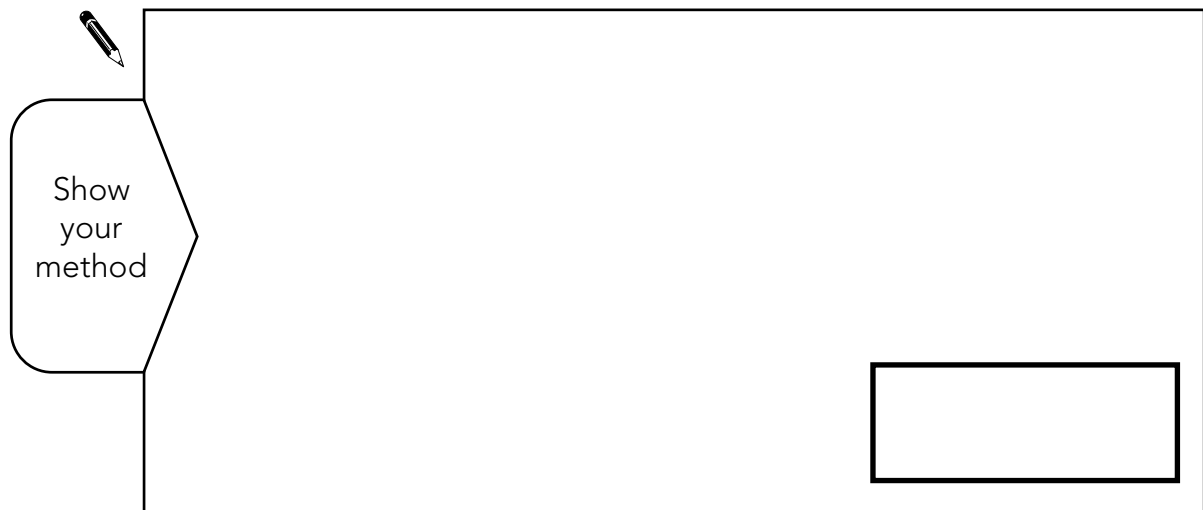**Follow the instructions for each question carefully.**

This shows where you need to put the answer.

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

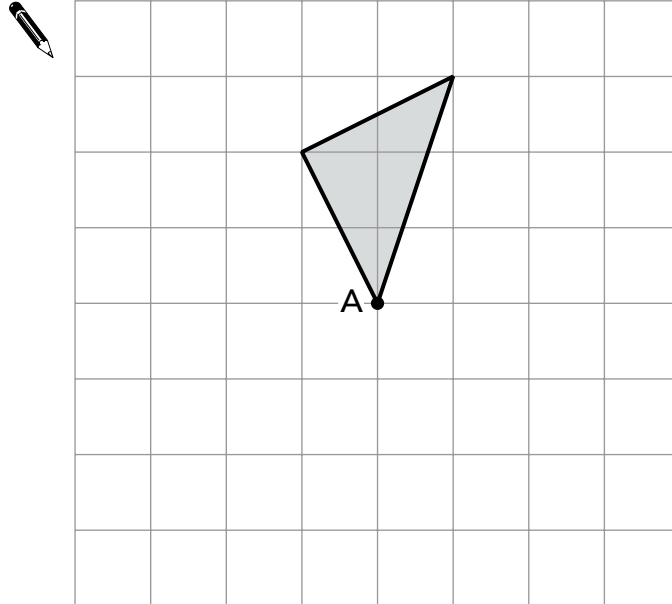**Some questions have an answer box like this:**

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

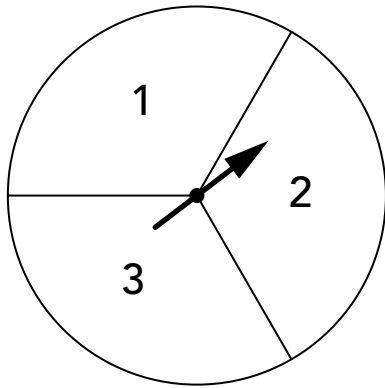Here is part of the sequence.

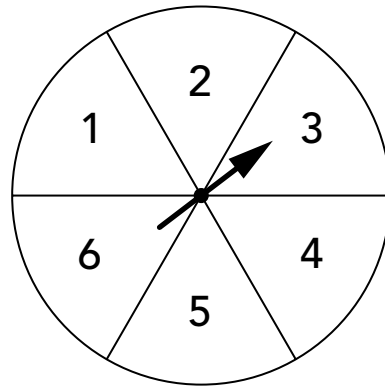Write the two missing numbers.

| | 40 30 35 32.5 33.75 | |

(2 marks)

3 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.

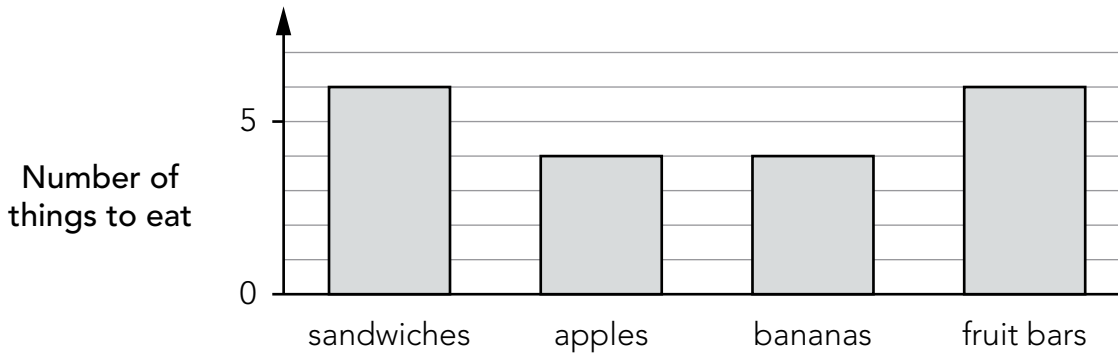How many pear trees can he buy with the money he has left?

Show your method

(2 marks)

5 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

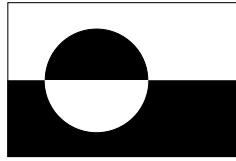Which child's information is missing from the graph?

Explain how you know.

(1 mark)

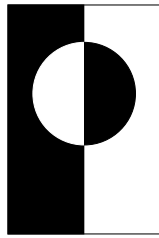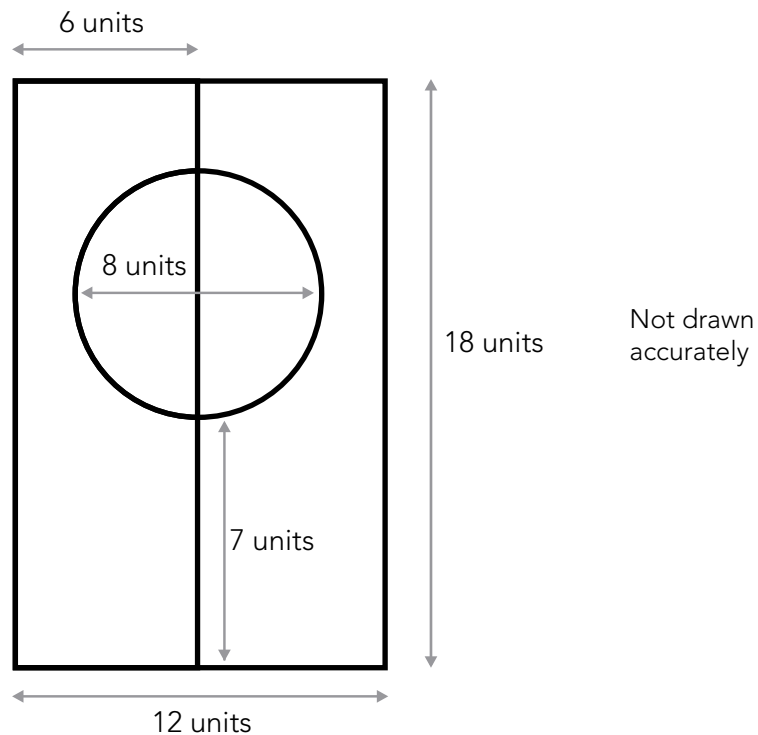**6**　　The flag of Greenland is a rectangle with a circle drawn inside.

Here is the same flag rotated.

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

6 units

8 units

18 units

Not drawn
accurately

7 units

12 units

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.
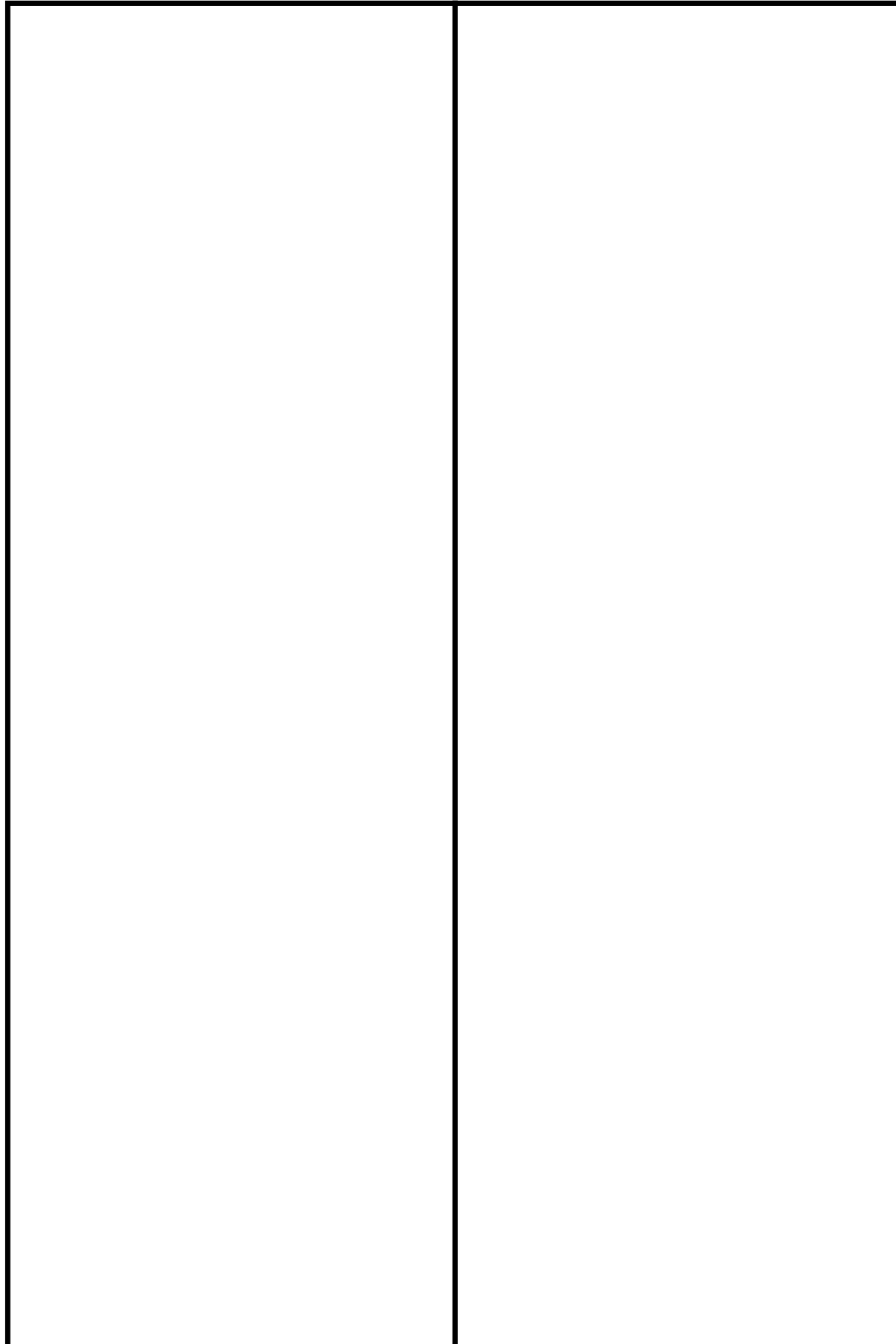
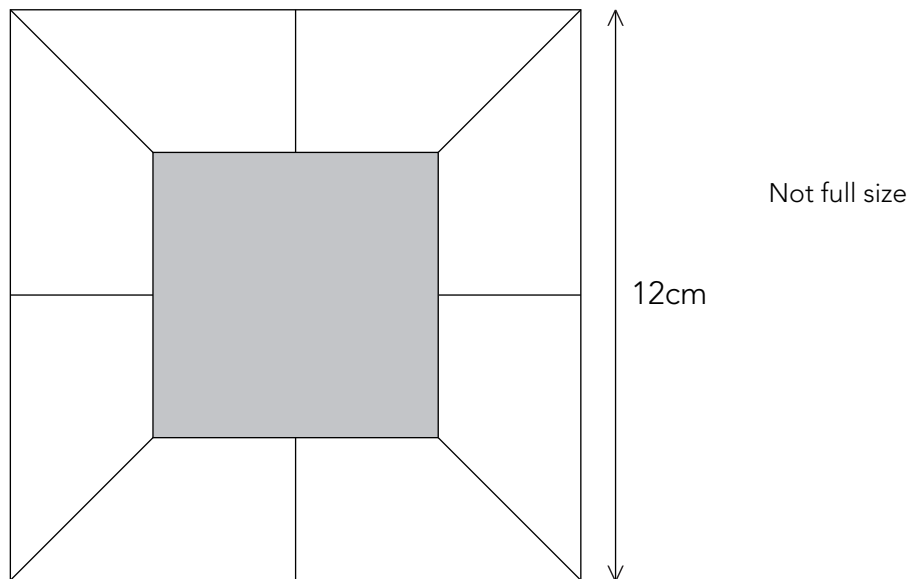*(3 marks)*

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

cm²

(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?
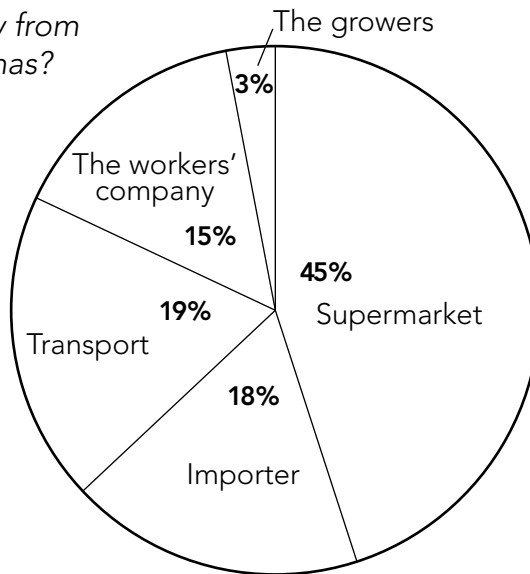
Answer: **56p per kg**

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%

Transport 19%

Importer 18%

Supermarket 45%

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)*
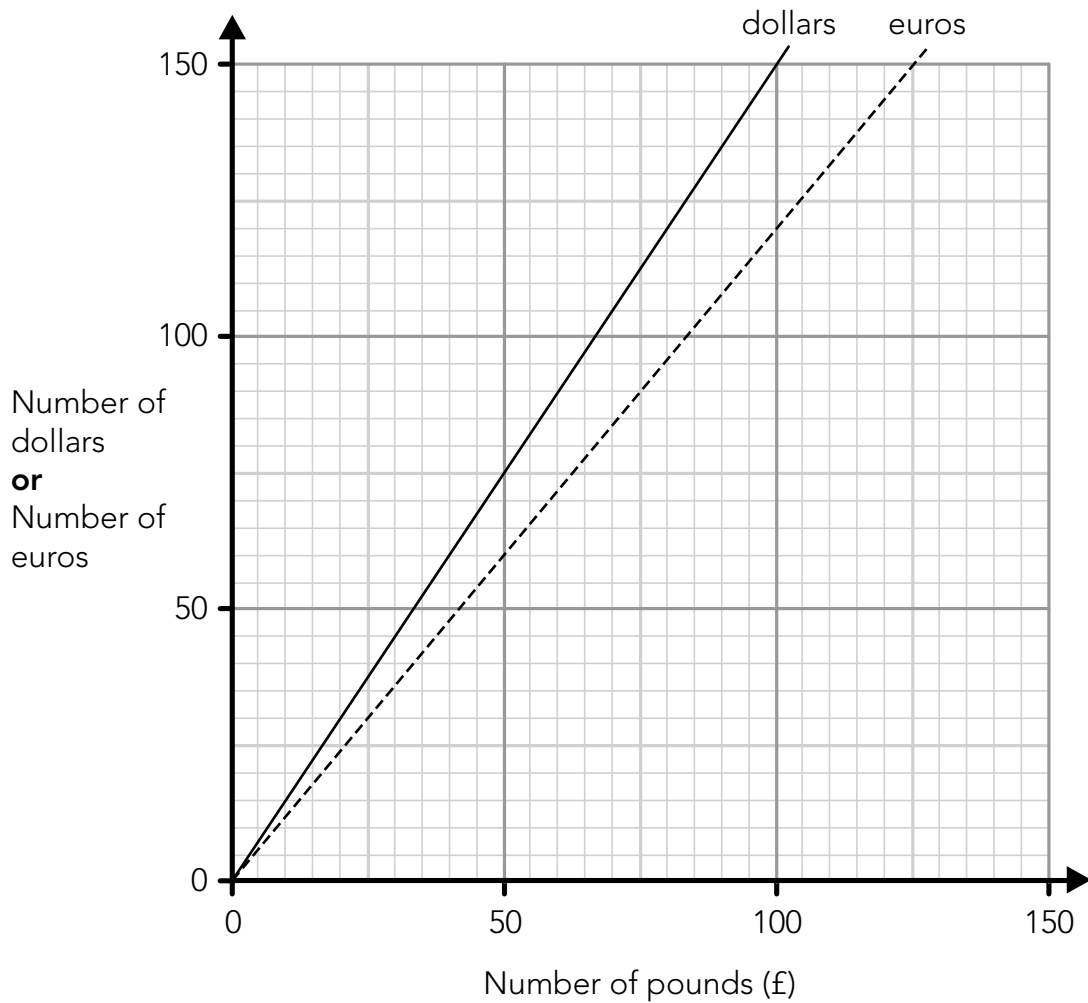
What value of x should Lisa try next?

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 |

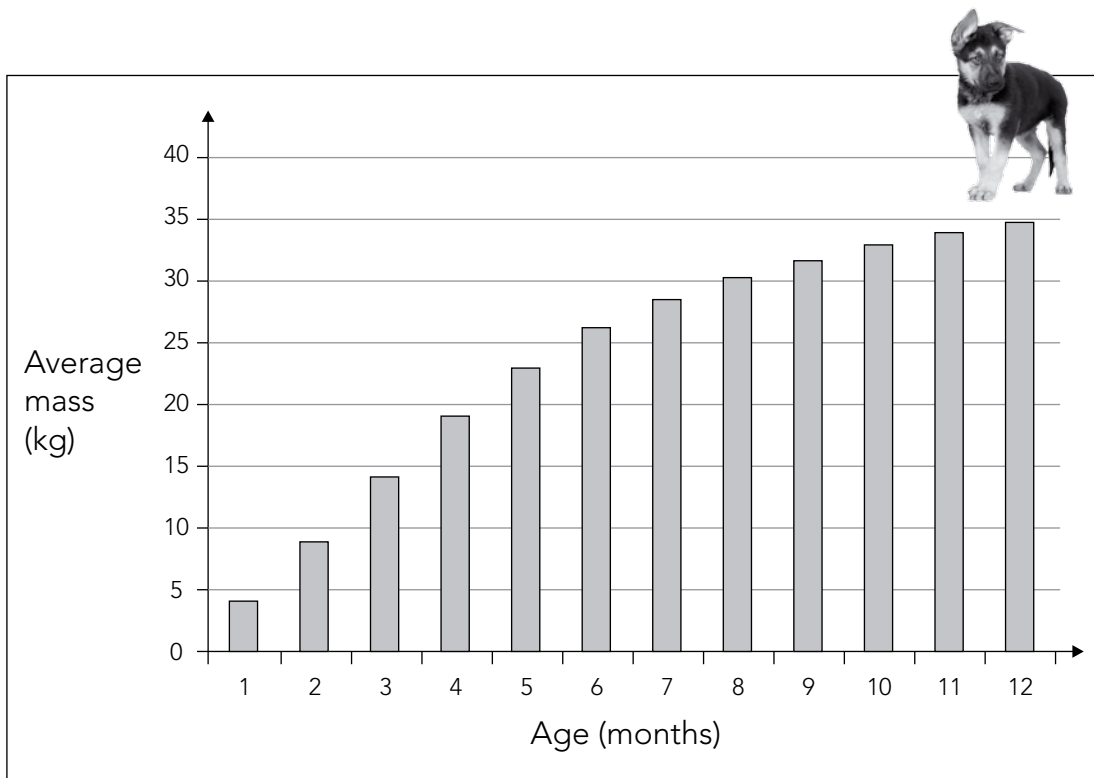| 120 dollars | is about the same as | £ _____ |

(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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