OCR
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GCSE (9–1) Mathematics

J560/02 Paper 2 (Foundation Tier)

Practice Paper

Date – Morning/Afternoon

Time allowed: 1 hour 30 minutes

You may use:
- Geometrical instruments
- Tracing paper

Do not use:
- A calculator

First name									
Last name									
Centre number						Candidate number				

INSTRUCTIONS
- Use black ink. You may use an HB pencil for graphs and diagrams.
- Complete the boxes above with your name, centre number and candidate number.
- Answer **all** the questions.
- Read each question carefully before you start your answer.
- Where appropriate, your answers should be supported with working. Marks may be given for a correct method even if the answer is incorrect.
- Write your answer to each question in the space provided.
- Additional paper may be used if required but you must clearly show your candidate number, centre number and question number(s).
- Do **not** write in the bar codes.

INFORMATION
- The total mark for this paper is **100**.
- The marks for each question are shown in brackets **[ ]**.
- This document consists of **24** pages.

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Answer **all** the questions

1 **(a)** Write these numbers in order of size, smallest first.

12 -7 -11 -2

(a) .... **[1]**
smallest

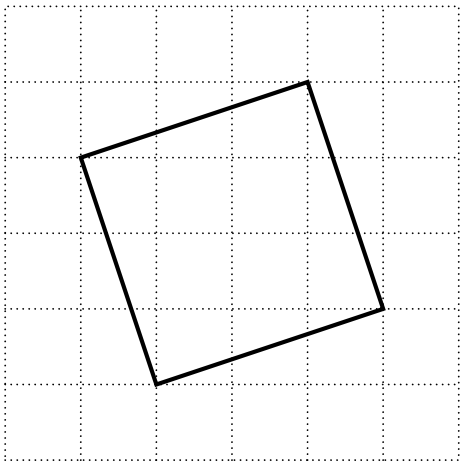
(b) Insert $<$, $>$ or $=$ to make each statement true.

(i) $\frac{3}{5}$ ..... 0.47 **[1]**

(ii) 0.38 ..... $\frac{19}{50}$ **[1]**

(iii) $\frac{3}{16}$ ..... $\frac{1}{4}$ **[1]**

2 This square is drawn on a one-centimetre square grid.



Work out the area of the square.

..... cm^2 **[3]**

3 **(a)** Work out.

(i) $4 + 6 \times 3 - 5$

(a)(i) ..... **[1]**

(ii) $30 \div (3 + 2)$

(ii) ..... **[1]**

(iii) $1 + 2^3$

(iii) ..... **[1]**

(b) Round 162.645

(i) to 1 decimal place,

(b)(i) ..... **[1]**

(ii) to 2 significant figures.

(ii) ..... **[1]**

(c) Estimate the value of $\frac{4.34 \times 19.2}{11.3}$.

(c) ..... **[2]**

4 Milly has a 12 m length of material.

She uses **four** lengths of 2.3 m to make curtains.
She uses the rest to make cushions.
A cushion needs a length of 0.48 m of the material.

Show that she can make no more than **five** cushions. **[5]**

5 Work out.

(a) $926 - 382$

(a) ..... **[1]**

(b) 517×16

(b) ..... **[2]**

6 **(a)** Jacob earns £93.20 for 8 hours' work.
He gets the same amount of pay for each hour.

What is his rate of pay per hour?

(a) £ ..... **[2]**

(b) Lena works for 34 hours from Monday to Friday at her normal rate of pay.
On Saturdays she gets an overtime rate of pay.
The overtime rate is 1.5 times her normal rate.

She works for 4 hours on a Saturday.
Altogether Lena earns £320 for her week's work.

What is her normal rate of pay per hour?

(b) £ ..... **[3]**

7 Lemon drinks are made by mixing concentrate with water.

(a) Sian has a lemon drink made by mixing 120 ml of concentrate with 180 ml of water.

What percentage of her lemon drink is concentrate?

(a) ..... % **[3]**

(b) Sophia has a lemon drink made by mixing 70 ml of concentrate with 180 ml of water.
Tommy has a lemon drink made by mixing 90 ml of concentrate with 270 ml of water.

Who has the stronger drink, Sophia or Tommy?
Show your working.

..... **[4]**

8 **(a)** Here is a list of numbers.

32 33 34 35 36 37 38 39 40

From this list, write down

(i) a multiple of 7,

(a)(i) ..... **[1]**

(ii) a square number,

(ii) ..... **[1]**

(iii) a prime number.

(iii) ..... **[1]**

(b) Circle the **two** statements that are **false**.

A If p is an integer then $3p$ is a multiple of 3.

B If q is an even number then $\frac{q}{2}$ is always an even number.

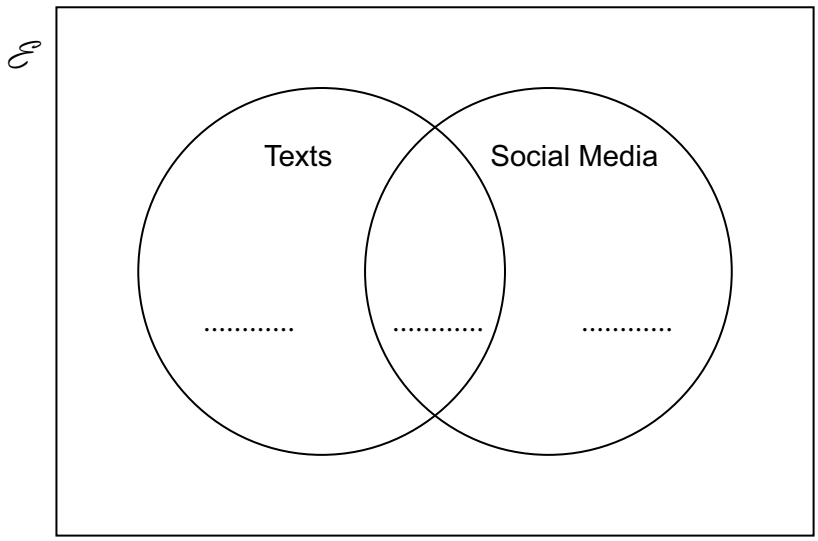
C If s is an integer then $2s + 1$ is an odd number.

D If t is an even number then t^3 is an odd number. **[2]**

9 50 students were asked in a survey whether they use texts or social media.

- 20 students said they only use texts.
- 8 students said they only use social media.
- 17 students said they use both texts and social media.

(a) Put this information on the Venn diagram.



[1]

(b) How many of the students in the survey do not use texts or social media?

(b) ..... **[2]**

(c) One of the students in the survey is chosen at random.

What is the probability that this student uses texts?

(c) ..... **[2]**

10 Jason is playing a game.
He has two sets of cards.
One set has three red cards, numbered 1, 2 and 3.
The other set has four green cards, numbered 4, 5, 6 and 8.

Jason chooses a red card and a green card at random.
He works out his score by adding the numbers on the two cards together.

(a) Complete the table to show all the possible scores.

Red card	Green card: 4	5	6	8
3	.....	.....	.....	.....
2	.....	.....	.....	10
1	5	.....	.....	.....

[2]

(b) Work out the probability that Jason gets

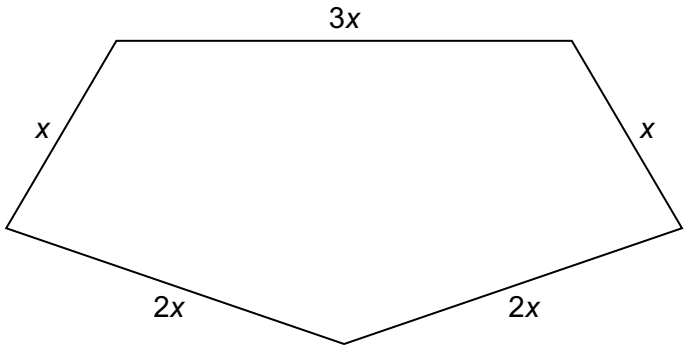
(i) a score of 10,

(b)(i) ..... **[1]**

(ii) a score of 9 or more.

(ii) ..... **[1]**

11 **(a)** Here is a pentagon.



Not to scale

Write down an expression for the perimeter of the pentagon.
Give your answer in its simplest form.

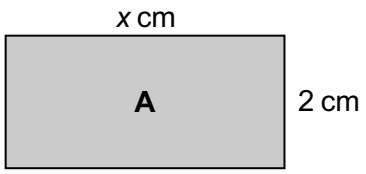
(a) ..... **[1]**

(b) Simplify fully.

$4x + 3y - 2 + 2x - 8y - 6$

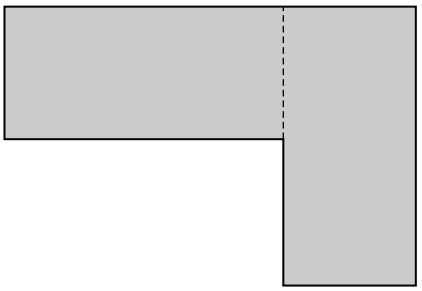
(b) ..... **[2]**

(c) Shape **A** is a rectangle of length x cm and width 2 cm.



Not to scale

The shape below contains two rectangles that are identical to shape **A**.

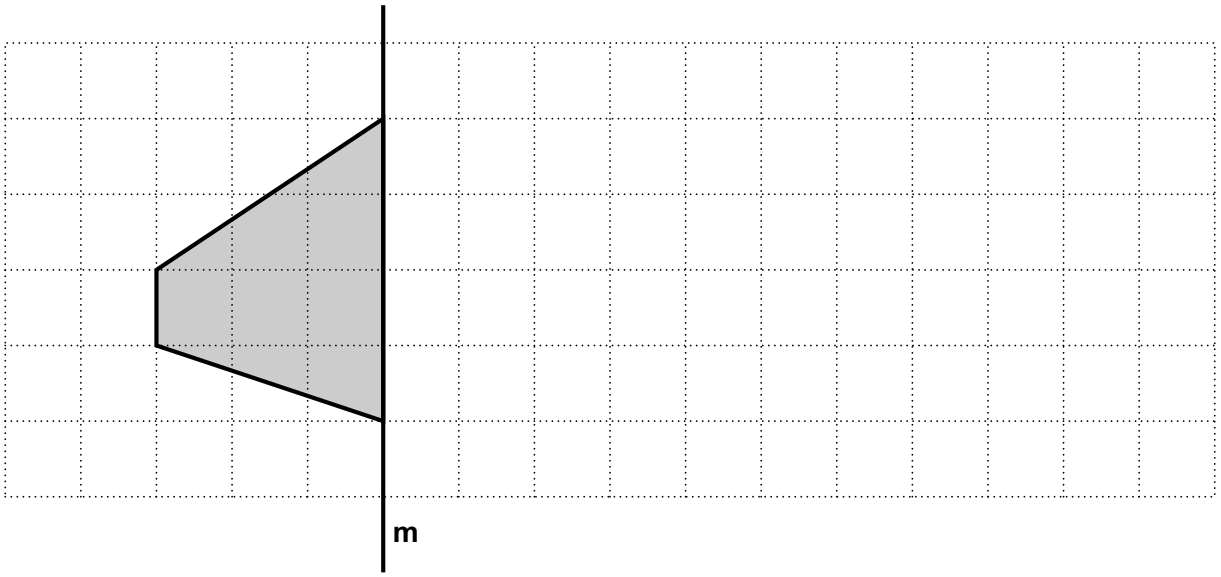


Not to scale

Work out an expression for the perimeter of this shape.
Give your answer in its simplest form.

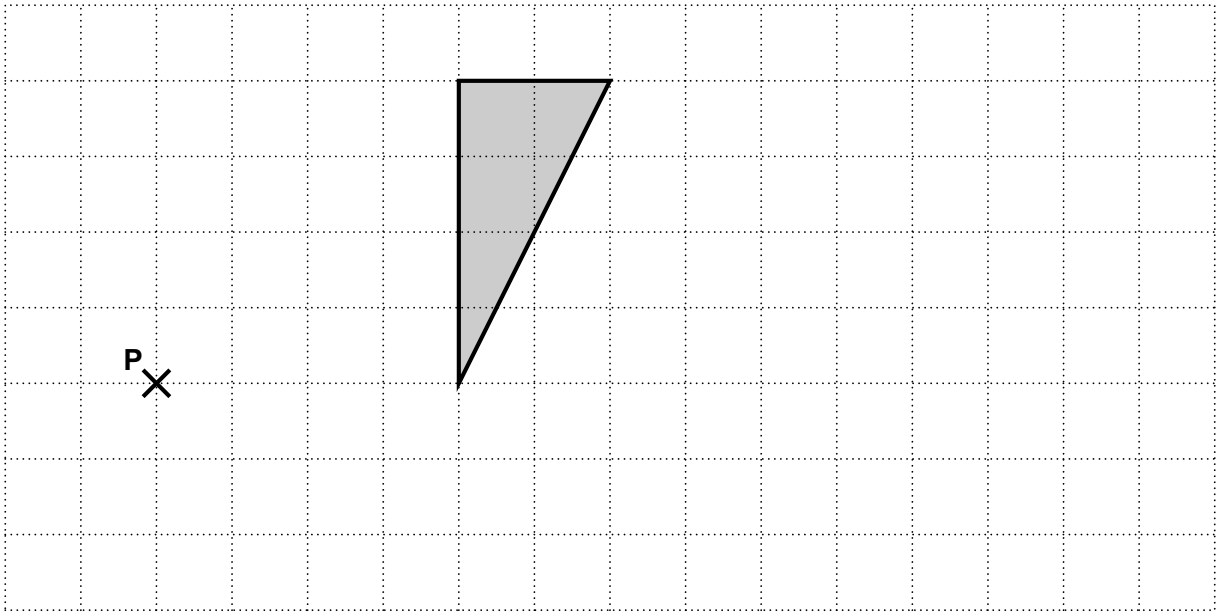
(c) ..... cm **[3]**

12 **(a)** Reflect the shape in the line **m**.



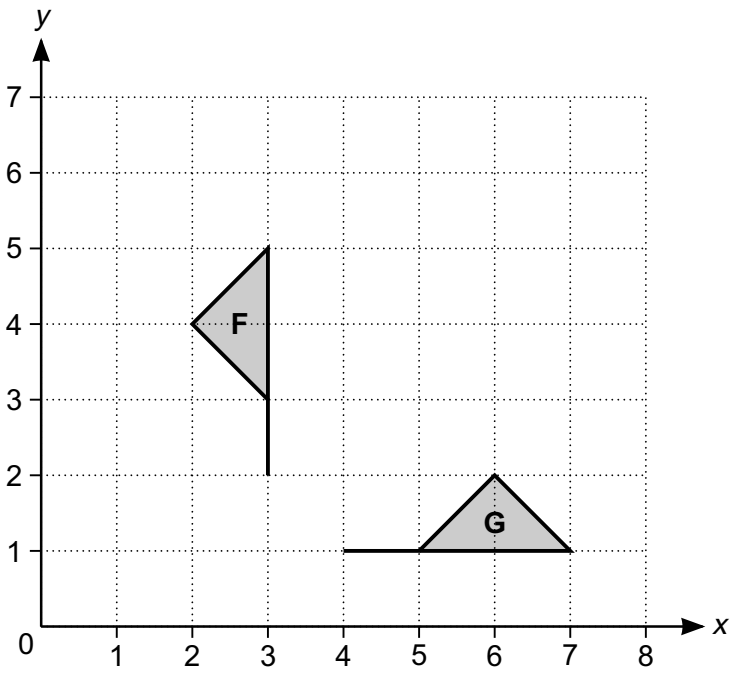
[1]

(b) Enlarge the triangle with centre **P** and scale factor $\frac{1}{2}$.



[2]

(c) Here are two flags.



Flag **F** is rotated onto Flag **G**.

Describe the rotation fully.

.....

..... **[2]**

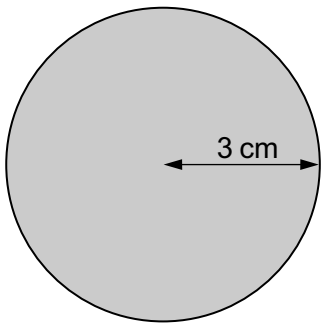
13 **(a)** Work out.

$$\frac{3}{7} + \frac{4}{5}$$

Give your answer as a mixed number.

(a) ..... **[3]**

(b) This is a circle with radius 3 cm.



Not to scale

Work out the area of the circle.
Give your answer in terms of π.

(b) ..... cm^2 **[2]**

14 (a) The nth term of a sequence is given by $2n^2 + 1$.

Write down the first three terms of this sequence.

(a) ..... , ... , ... **[2]**

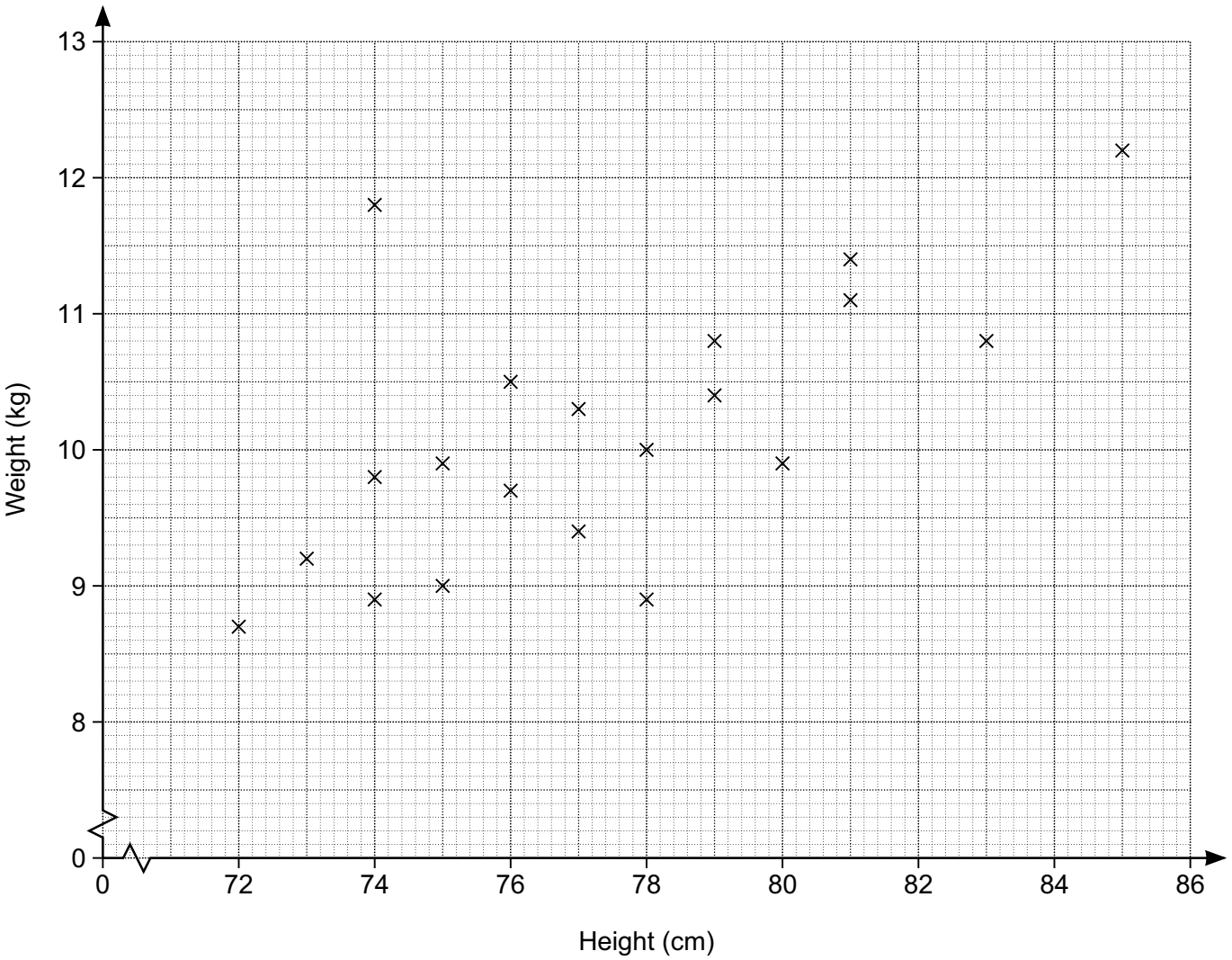
(b) Here are the first four terms of a different sequence.

2 7 12 17

Write an expression for the nth term of this sequence.

(b) ..... **[2]**

15 The scatter diagram shows the height and weight of twenty babies aged 12 months.



(a) Leila is 12 months old. Her height is 81 cm and she weighs 10.4 kg.

Put a cross on the diagram to represent this. **[1]**

(b) Archie is 12 months old. His height is 75 cm.

Draw a line of best fit and use it to estimate Archie's weight.

(b) ..... kg **[2]**

(c) The height and weight of one of the babies is not typical for babies aged 12 months.

Circle the point on the diagram representing this baby. **[1]**

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(d) Josie has a baby who is 15 months old.
Her baby has a height of 82 cm.

Josie is going to use the line of best fit to estimate what her baby's weight should be.

Explain why it may not be sensible for Josie to do this.

.....

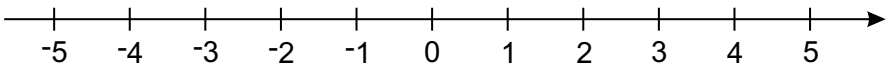
..... **[1]**

16 **(a)** Solve this inequality.

$3x - 2 \leqslant 10$

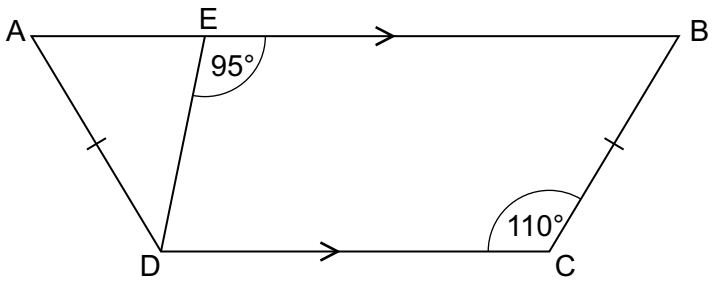
(a) ..... **[2]**

(b) Represent your solution to part **(a)** on the number line.



[1]

17 ABCD is a trapezium.
AD = BC.



Not to scale

Work out

(a) angle EBC,

(a) ..... ° **[1]**

(b) angle ADE.

(b) ..... ° **[2]**

18 The angles in a triangle are in the ratio 1 : 2 : 3.
Neil says

This is a right-angled triangle.

Is Neil correct?
Show your reasoning.

..... **[3]**

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19 **(a)** Work out.

7^{-2}

(a) ..... **[1]**

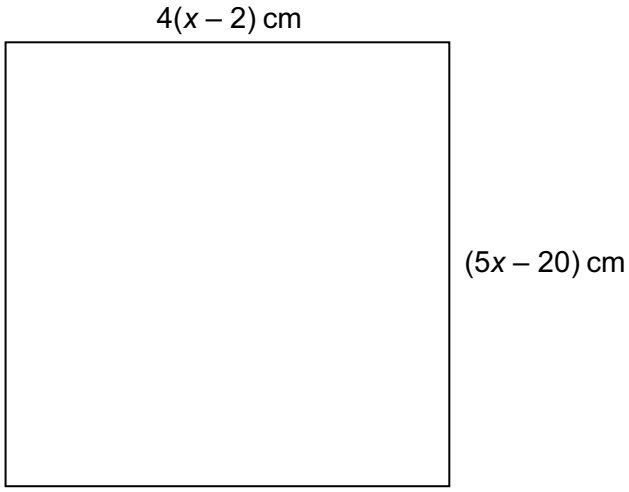
(b) Use numbers from this box to complete the statements.

0	1	$\sqrt{2}$	$\sqrt{3}$
$\frac{1}{2}$	$\frac{1}{\sqrt{2}}$	$\frac{1}{\sqrt{3}}$	$\frac{\sqrt{3}}{2}$

(i) $\tan 45° =$ ..... **[1]**

(ii) $\cos 30° =$ ..... **[1]**

20 This is a square.

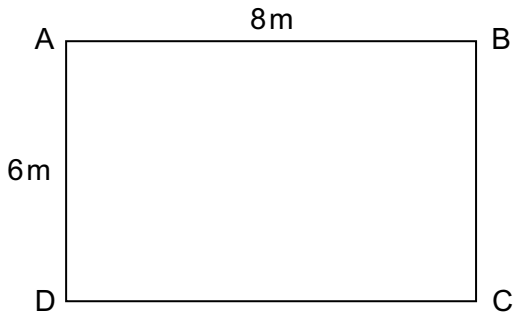


Not to scale

Work out the length of the side of the square.

..... cm **[5]**

21 ABCD is a rectangle.



Not to scale

(a) Sunita calculates the length of AC, but gets it wrong.

$8^2 - 6^2 = AC^2$

$\sqrt{28} = AC$

$\sqrt{28} = 5.29$ or -5.29

$AC = 5.29$

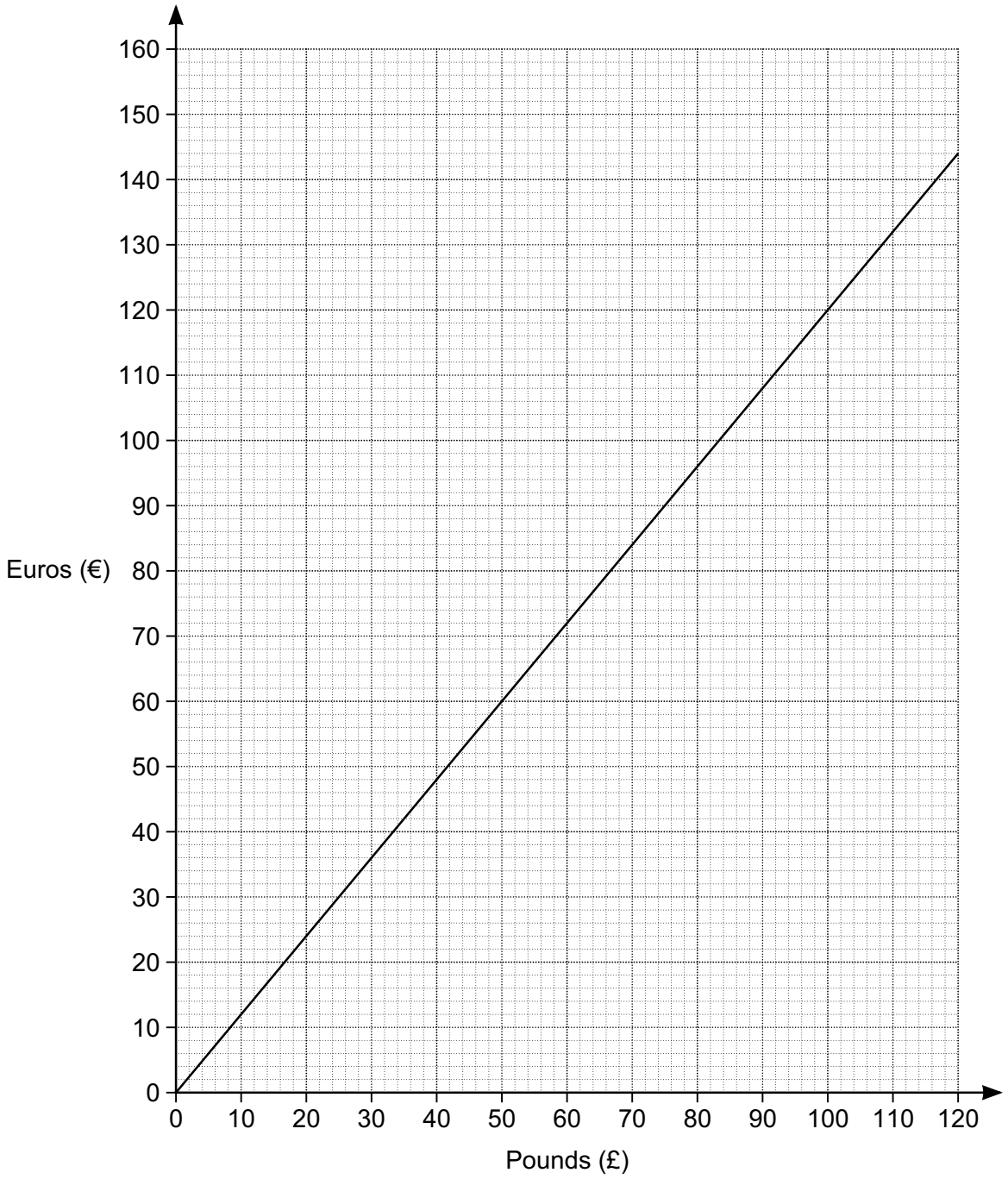
Explain what Sunita has done wrong.

..... **[1]**

(b) Calculate the length of AC.

(b) ..... m **[2]**

22 This is a conversion graph between pounds and euros.



(a) Convert £36 into euros.

(a) € ..... **[1]**

(b) **(i)** Convert €400 into pounds.

(b)(i) £ ..... **[3]**

(ii) State an assumption that you have made in working out your answer to part **(b)(i)**.

..... **[1]**

(c) Explain how the graph shows that the number of euros is directly proportional to the number of pounds.

.....

..... **[2]**