WJEC CBAC

GCSE LINKED PAIR PILOT

4364/01

METHODS IN MATHEMATICS
UNIT 2: Methods (Calculator)
FOUNDATION TIER

A.M. MONDAY, 17 June 2013

$1\frac{1}{2}$ hours

ADDITIONAL MATERIALS

A calculator will be required for this paper.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

Take π as 3·14 or use the π button on your calculator.

INFORMATION FOR CANDIDATES

You should give details of your method of solution when appropriate.

Unless stated, diagrams are not drawn to scale.

Scale drawing solutions will not be acceptable where you are asked to calculate.

The number of marks is given in brackets at the end of each question or part-question.

You are reminded that assessment will take into account the quality of written communication (including mathematical communication) used in your answer to question **4**.

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1	8	
2	5	
3	8	
4	9	
5	4	
6	4	
7	4	
8	6	
9	9	
10	5	
11	8	
12	5	
13	5	
TOTAL MARK		

Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$
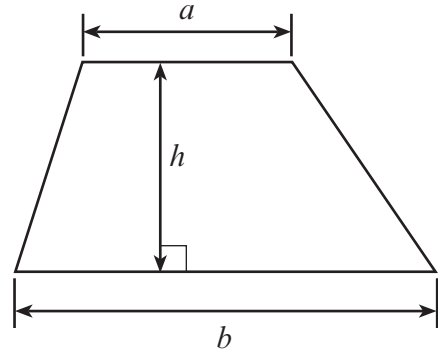
Volume of prism = area of cross-section $\times$ length
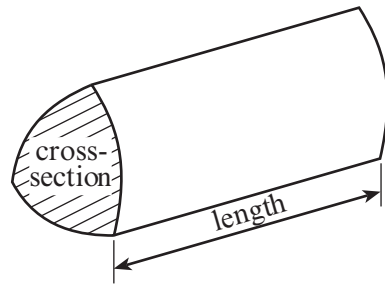
1. *(a)* Complete the following diagram so that *AB* is a line of symmetry.

A ———————————————————————— *B*
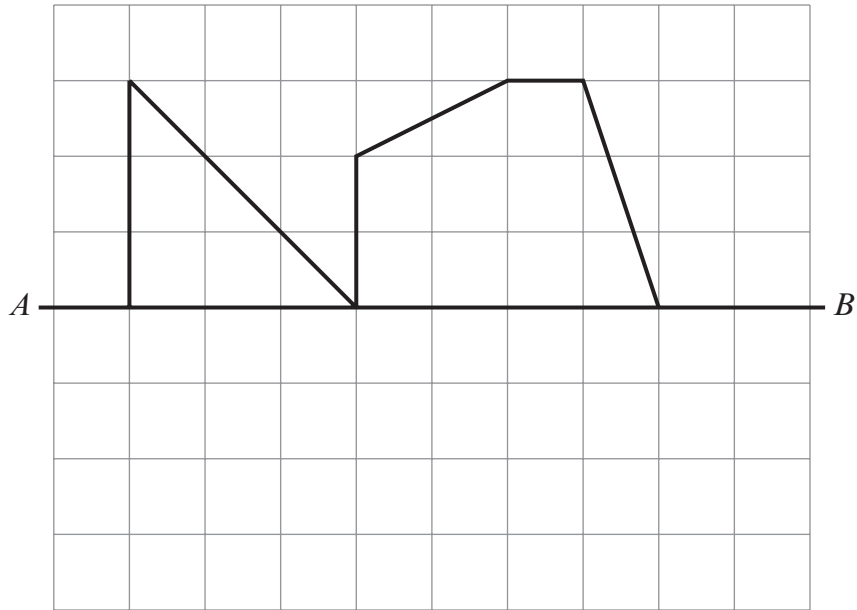
[2]

(b) Draw the lines of symmetry on each of the shapes below.
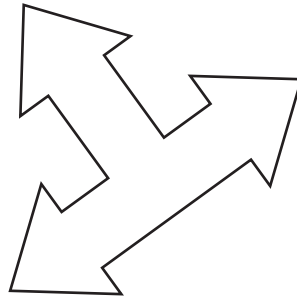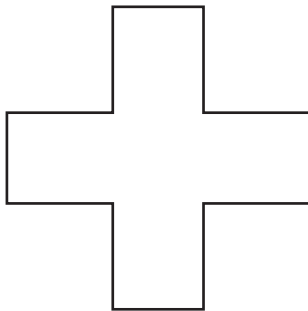
[3]

(c) Write down the order of rotational symmetry of each of the following shapes.

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[3]

(4364-01)   **Turn over.**
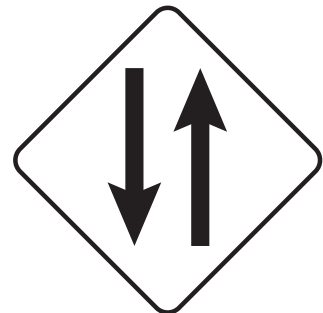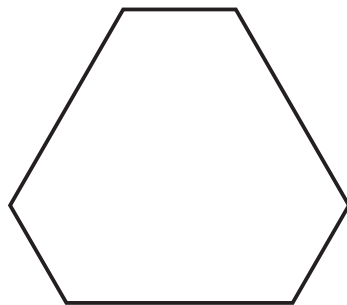
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2. *(a)* Draw a shape congruent to the one given below.
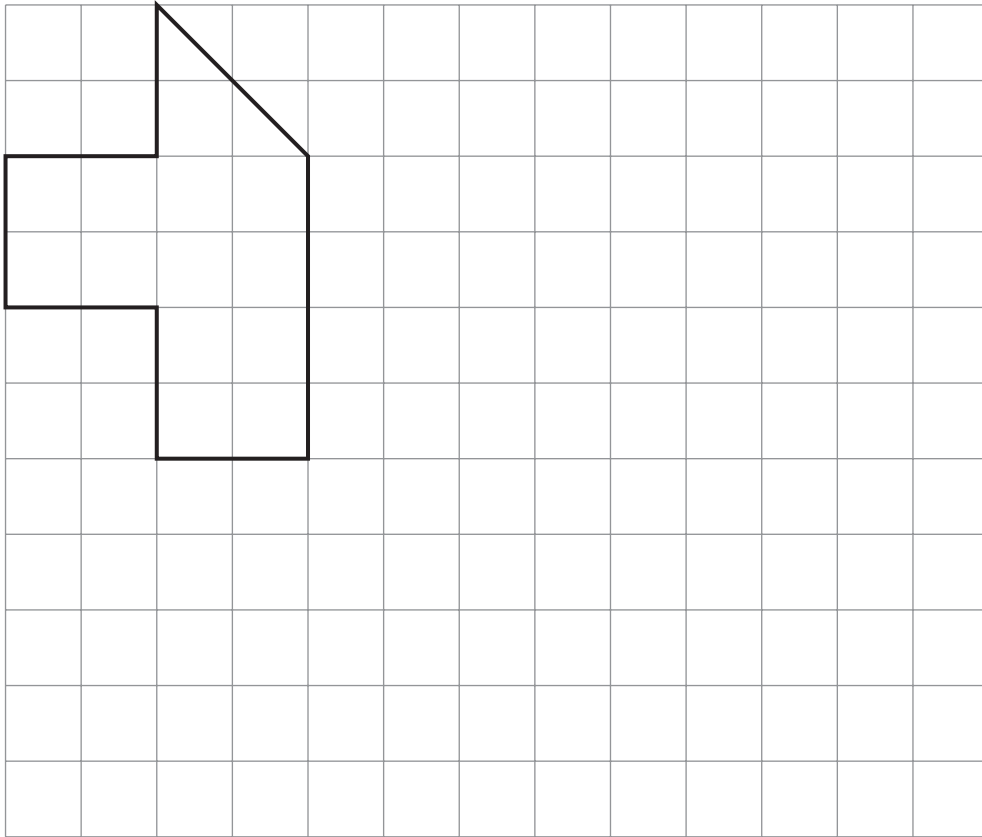
[1]

(b) Draw a shape similar, but not congruent, to the one given below.
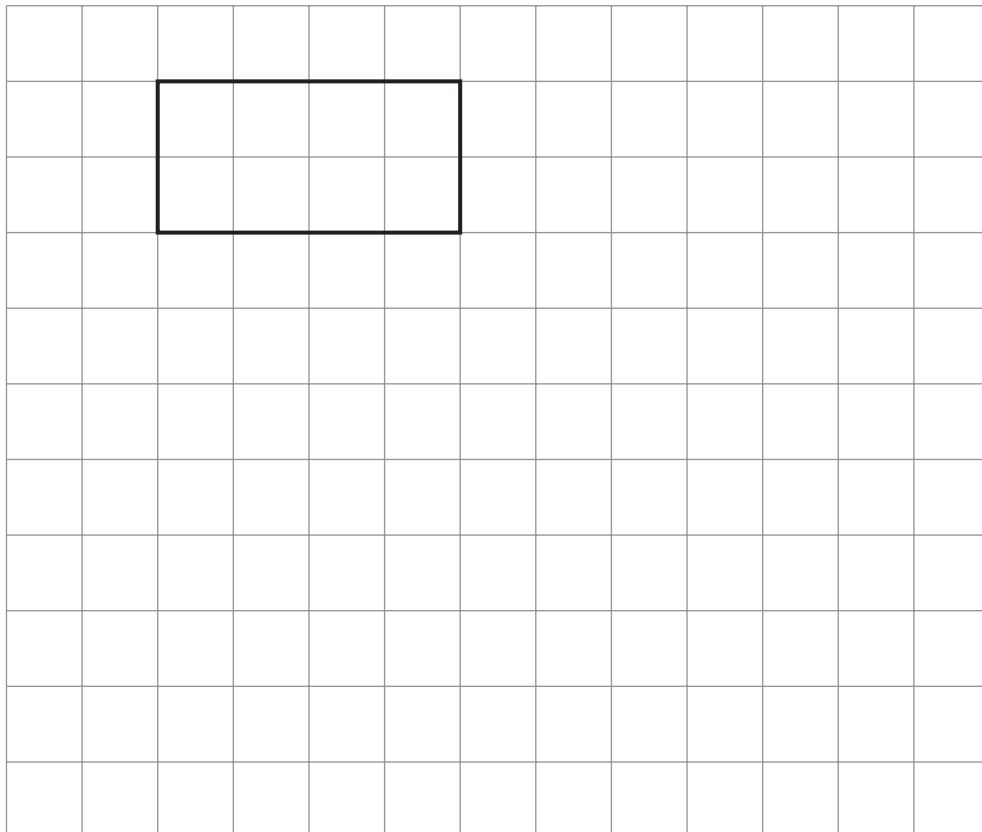
[1]

(c) On the following diagrams draw:
- a radius of a circle;
- a tangent of a circle;
- an arc of a circle.

Radius

Tangent

Arc

[3]

(4364-01)   **Turn over.**
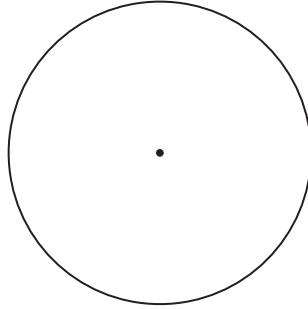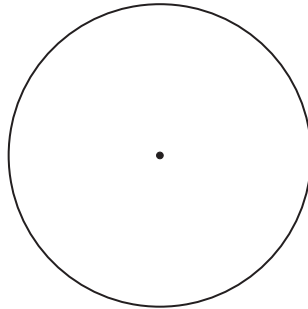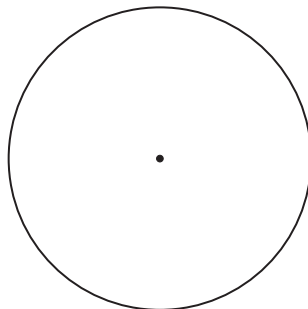
3. *(a)* Complete the following table to show equivalent fractions, decimals and percentages.

Fraction	Decimal	Percentage
	0·75	
$\dfrac{3}{10}$		

[4]

(b) Find 42% of 630.

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[2]

(c) Find $\dfrac{3}{7}$ of 364.

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[2]

4. *You will be assessed on the quality of your written communication in this question.*

A carpenter listed the number of hours he worked in one week as:

- 40 hours Monday to Friday
- 8 hours Saturday
- 6 hours Sunday

The carpenter was paid £12.85 per hour from Monday to Friday, double time on Saturday and triple time on Sunday.

Calculate the amount of money the carpenter earned in this particular week.
You must show all your working.

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[9]

5.

| −6 | 3 | 6 | −5 | −3 | 2 | 5 | −4 |

Using the cards above,

choose one card to give the answer 1,

$$\boxed{-4} \quad + \quad \boxed{} \quad = 1$$

choose one card to give the answer 5,

$$\boxed{2} \quad - \quad \boxed{} \quad = 5$$

Choose two cards to give the largest possible answer and write down this answer.

$$\boxed{} \quad - \quad \boxed{} \quad = \,................$$

[4]

6. Solve each of the following equations.

(a) $x - 4 = 3$

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[1]

(b) $4x = 36$

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[1]

(c) $5x - 4 = 31$

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[2]

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7. The area of a rectangle is $30\,\text{cm}^2$.
Its length and width are **whole numbers**.
Find the smallest possible perimeter of this rectangle.

Perimeter = ... cm

[4]

8. *(a)* Use equivalent fractions, with a common denominator, to write $\frac{3}{4}$, $\frac{7}{12}$, $\frac{5}{6}$ and $\frac{2}{3}$ in order with the **smallest** first.
You must show all your working.

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[3]

(b) In a school $\frac{3}{5}$ of the pupils are girls.

There are 390 girls in the school.

Calculate the total number of pupils in the school.

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[3]

9. *(a)* Karen measured one of her paces as 0·8 m.
Her bedroom is rectangular and measures 7 paces long and 5 paces wide.
What is the area of Karen's bedroom? You must state the units of your answer.

[5]

(b) A cuboid with length 45 cm, width 20 cm and height 35 cm is completely filled with water.
The water is then poured into a larger cuboid with length 100 cm and width 15 cm.
Showing all your working, calculate the height of the water in the larger cuboid.

[4]

10. *(a)* In an election Stella gained 28 416 votes out of a total of 38 400 votes.
Write 28 416 as a percentage of 38 400.

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[2]

(b) Jake needs to find a selling price which is 12% more than £766.
Find the selling price.

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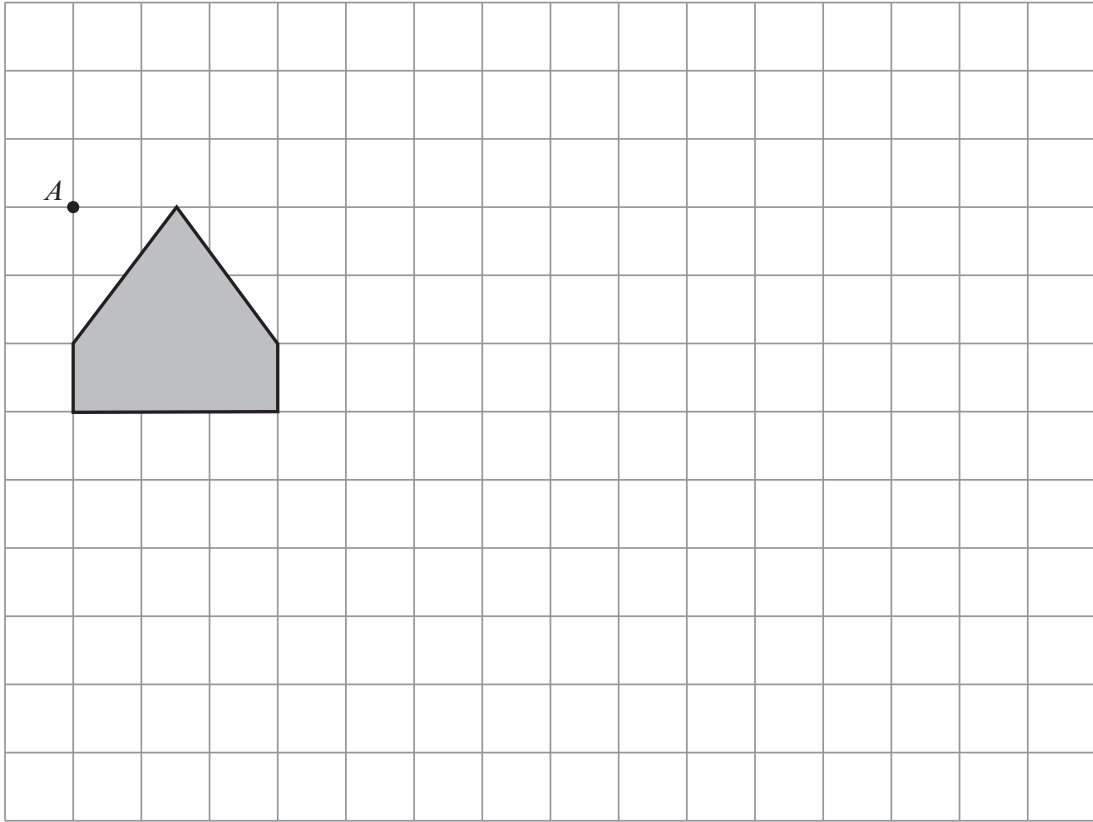
[2]

(c) Cheryl and her sister share an amount of money in the ratio 2 : 3 respectively.
What fraction of the money will Cheryl receive?

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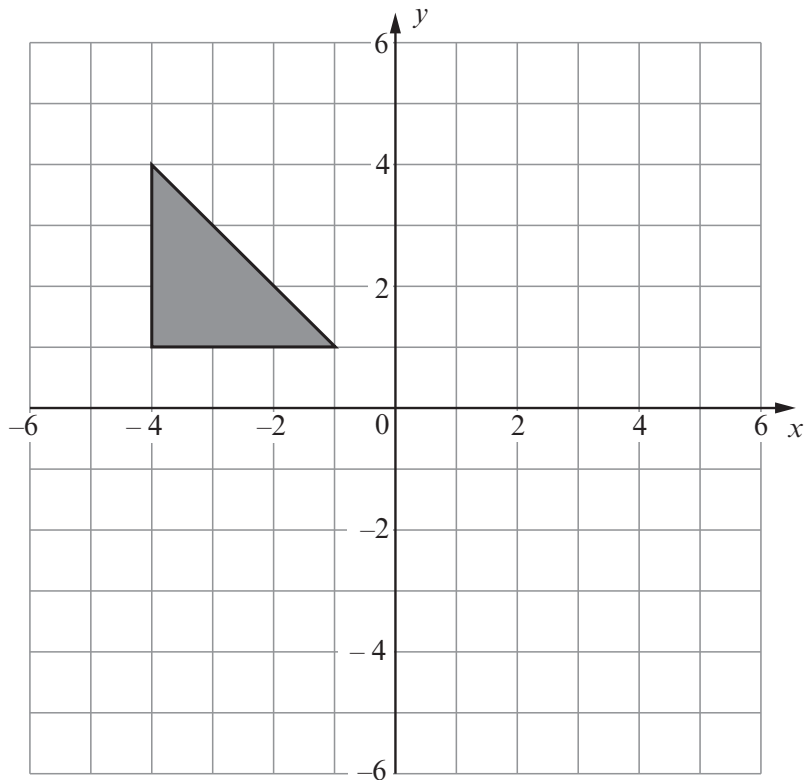
[1]

11. *(a)* Enlarge the shape shown on the grid by a scale factor of 2 using *A* as the centre of the enlargement.
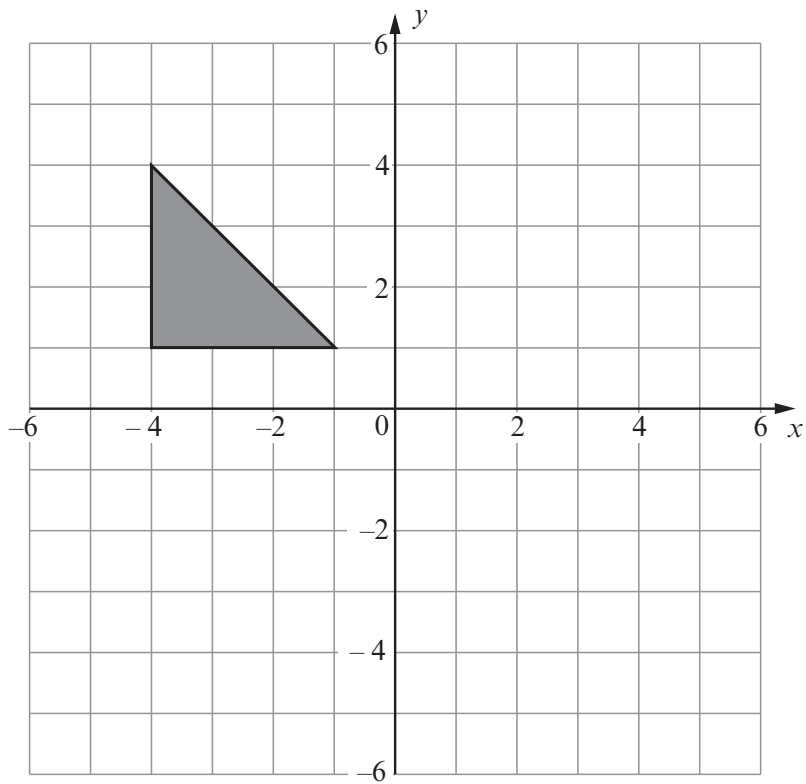

[3]

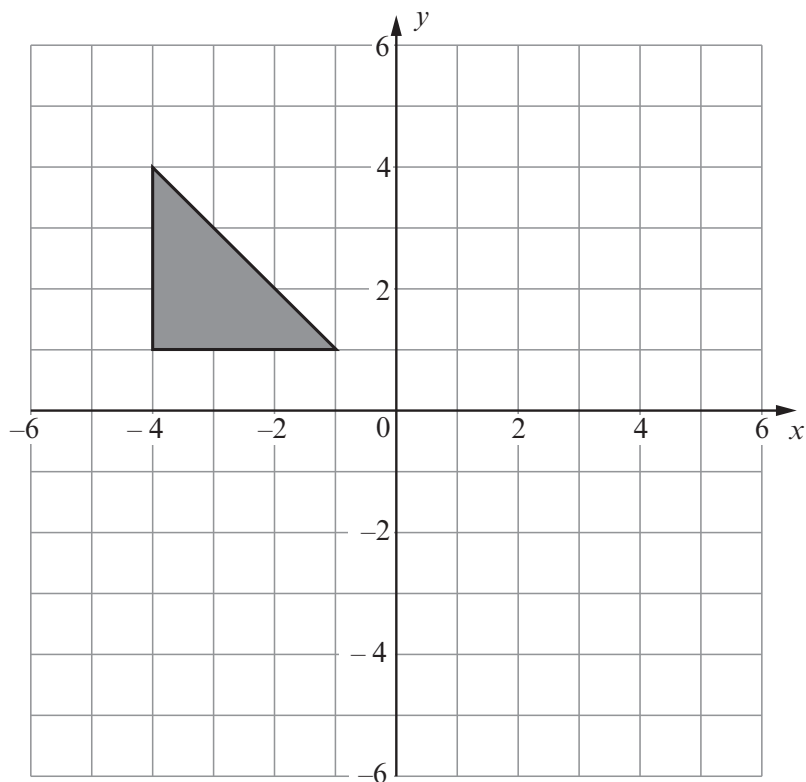*(b)* Reflect the triangle in the line *y* = *x*.

[2]

(c) Translate the triangle shown below by $\begin{pmatrix} 5 \\ -3 \end{pmatrix}$.

[1]

(d) Rotate the triangle shown on the grid below through 90° anticlockwise about (2, 1).

[2]

12. *(a)* Solve $9x - 4 = 7(x + 2)$.

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[3]

(b) Solve the inequality $10x + 5 > 45$.

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[2]

13. *(a)*
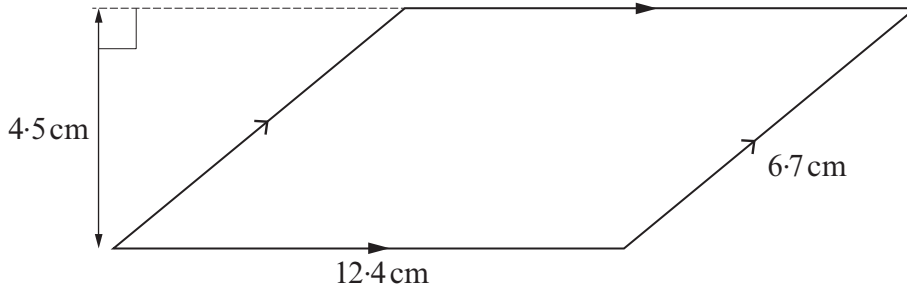
Diagram not drawn to scale

Calculate the area of the parallelogram.

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[2]

(b) The lengths, in centimetres, of the five sides of a pentagon are:

$$x \qquad x + 2 \qquad 2x \qquad 3x + 5 \qquad 4x$$

The perimeter of the pentagon is 95 centimetres.
Set up an equation in terms of x and solve it to find the value of x.

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$x = $ ....

[3]

END OF PAPER

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