WJEC CBAC

GCSE LINKED PAIR PILOT

4364/01

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

A.M. THURSDAY, 17 January 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 **10**.

For Examiner's use only		
Question	**Maximum Mark**	**Mark Awarded**
1	**2**	
2	**9**	
3	**3**	
4	**8**	
5	**8**	
6	**5**	
7	**4**	
8	**5**	
9	**3**	
10	**6**	
11	**4**	
12	**6**	
13	**8**	
14	**2**	
15	**4**	
16	**3**	
TOTAL MARK		

Formula List

Area of trapezium = $\frac{1}{2}(a + b)h$
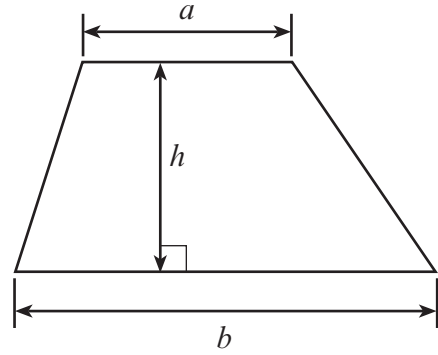
Volume of prism = area of cross-section × length
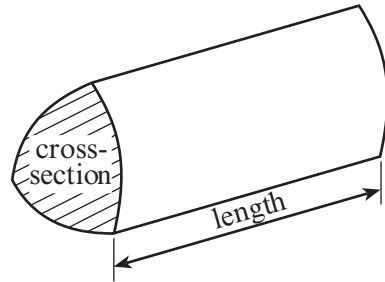
1. Using the following diagrams, write down two pairs of similar shapes.

A

B

C

D

E

F

G

H

J

K
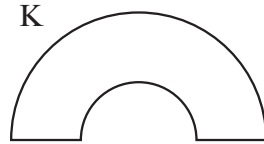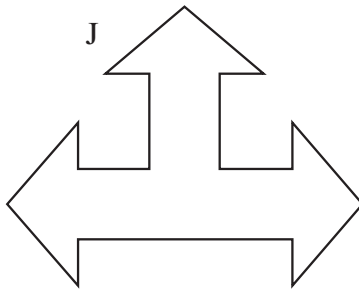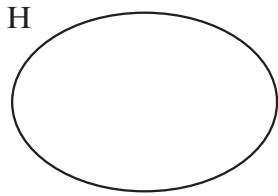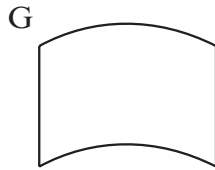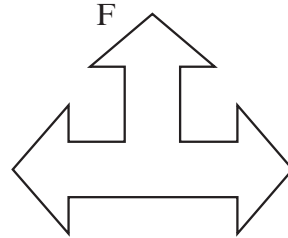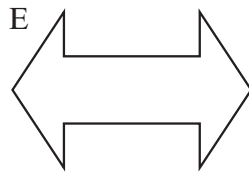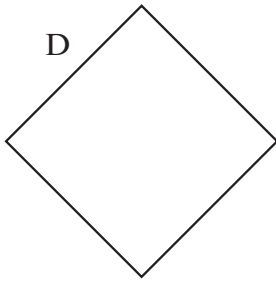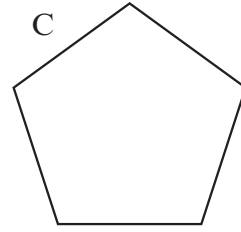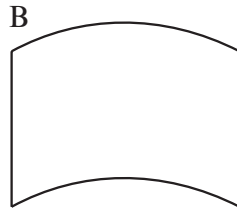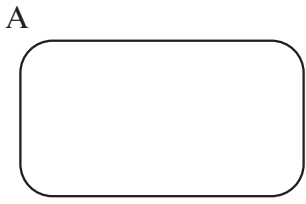
One pair of similar shapes is .... and ....

Another pair of similar shapes is .... and ....

[2]

4364
010003

2. *(a)* Find 27% of 830.

....

....

....

[2]

(b) Daniel was given £1500.
He spent $\frac{1}{3}$ of the money on his car and $\frac{1}{5}$ of the money going out with friends.
He saved the rest of the money.
How much money did he save?

....

....

....

....

....

....

[4]

(c) Write 0·3 as a percentage. ....

Write $\frac{17}{50}$ as a percentage. ....

Write 0·3, $\frac{17}{50}$ and 28% in ascending order.

....

[3]

3. *(a)* Using the words given in the following table, choose the name of the shaded part of the circle.

Diameter	Segment	Sector	Arc

....
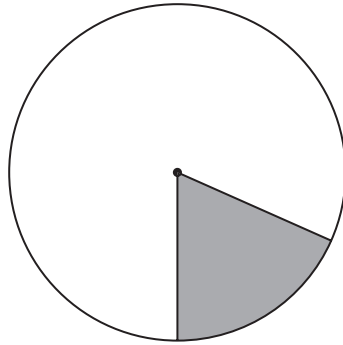
[1]

(b) Using the words given in the following table, choose the name of the straight line in each diagram shown below.

Chord	Tangent	Radius	Circumference

....

....
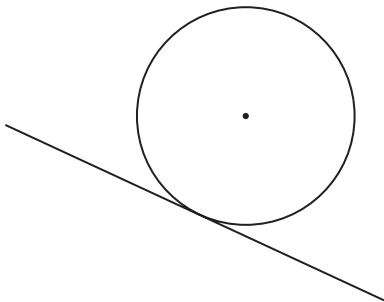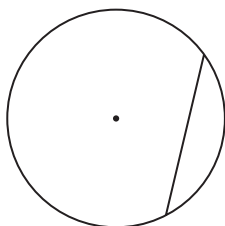
[2]

4. *(a)* Shade **four** squares to complete the diagram below so that it is symmetrical about the line *AB*.

[2]
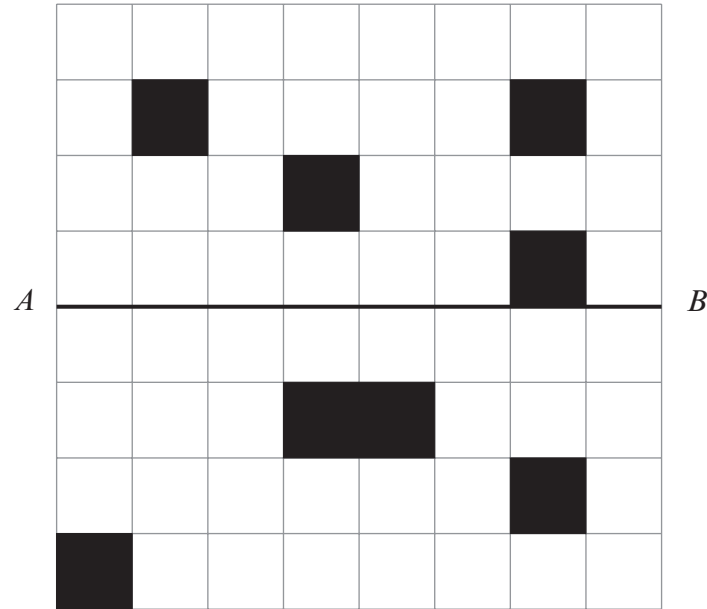
(b) Complete the following diagram so that *CD* is a line of symmetry.

[2]
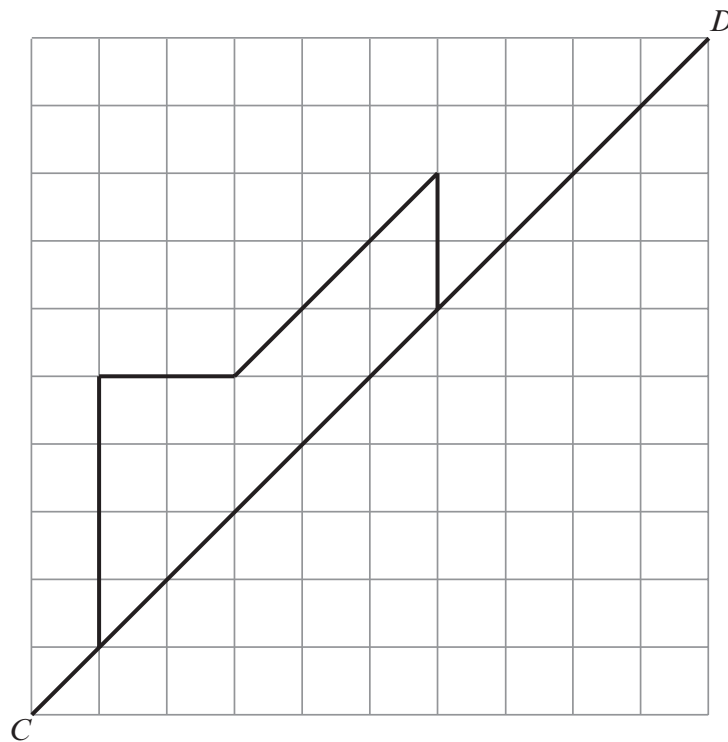
(c) Draw patterns, like the one given, in each of the other 3 sections so that the completed pattern has rotational symmetry of order 4 about *O*.

[3]
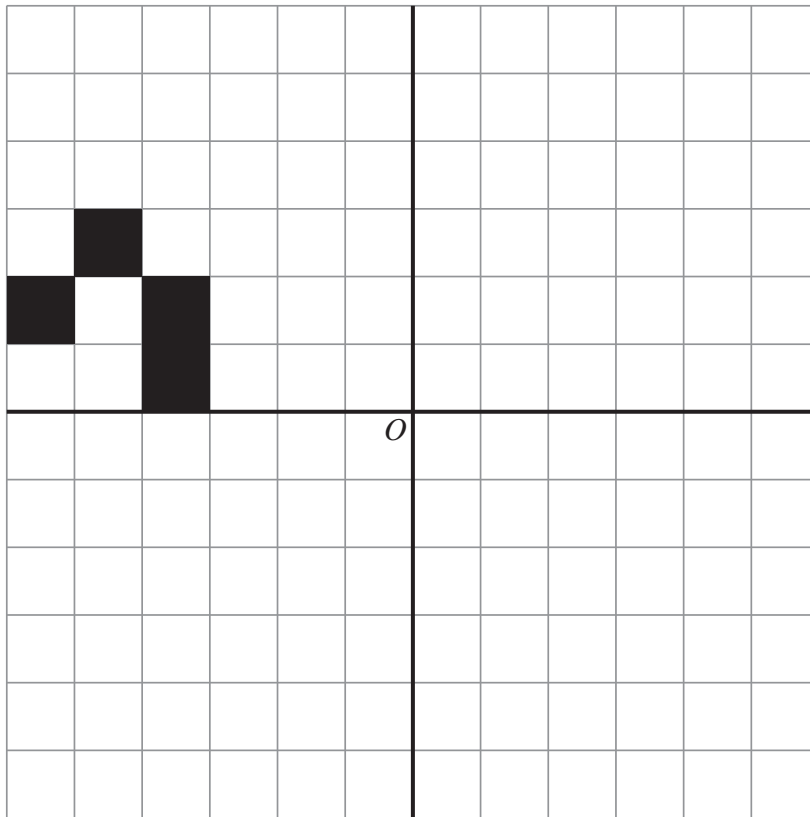
(d) On the grid below, draw a shape that is congruent to the given shape *A*.

[1]
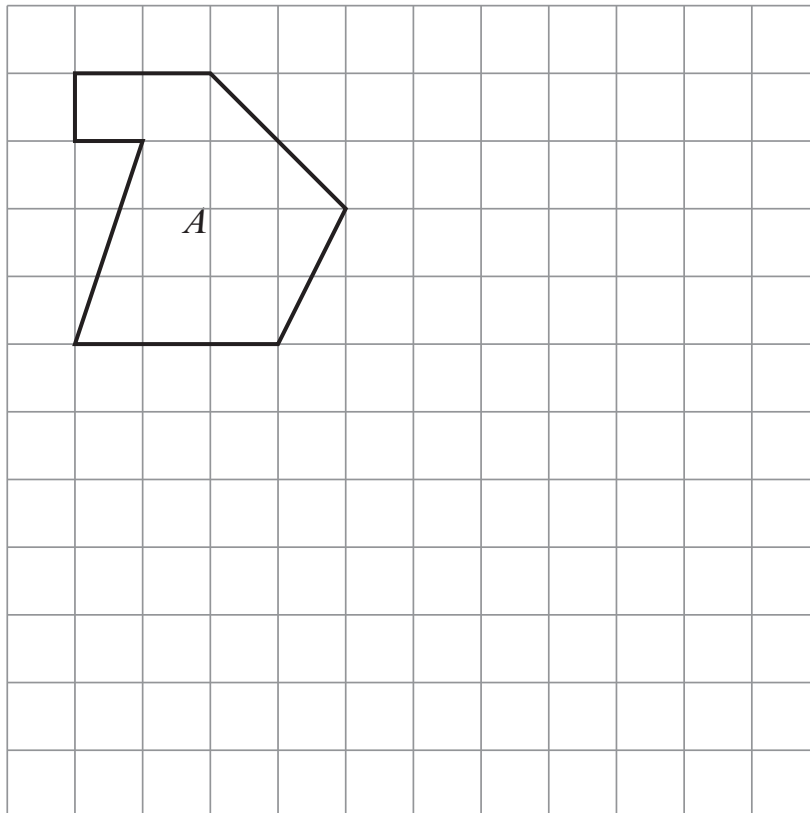
5. *(a)* Find $\frac{3}{4}$ of 156.

....

....

....

[2]

(b)
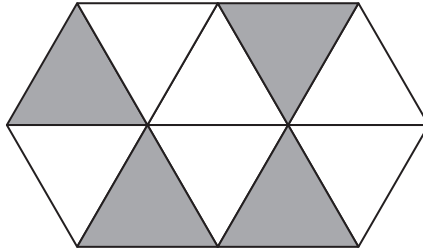
(i) What percentage of the shape above is shaded?

....

[1]

(ii) What percentage of the shape above is NOT shaded?

....

....

[1]

(c)

6 : 3	$\frac{2}{6}$	20 : 5	$\frac{3}{4}$
$\frac{5}{20}$	4 : 16	$\frac{4}{12}$	7 : 28

From the table above, select

(i) two **fractions** that are equivalent to $\frac{1}{3}$.

....

....

[2]

(ii) two **ratios** that are equivalent to 1 : 4.

....

....

[2]

6. *(a)* Flowers costing £4.76 and chocolates costing £6.59 are paid for using a £20 note. How much change will be given?

....

....

....

....
[3]

(b) How many DVDs costing £7.89 can be bought with £50?

....

....

....

....
[2]

7. In the following table, the letters a, b, c and d represent different numbers.
The total for each row is given at the side of the table.
Find the values of a, b, c and d.

a	a	a	a	16
a	b	b	a	18
a	c	c	c	13
a	b	c	d	14

....

....

....

....

a = ... b = ... c = ... d = ...
[4]

8. Solve each of the following equations.

    (a) $8 + x = 21$

....

....

[1]

    (b) $x - 3 = -7$

....

....

[1]

    (c) $8x = 32$

....

....

[1]

    (d) $2x - 5 = 9$

....

....

....

[2]

9. Find the value of each of the following calculations.

    (a) $\dfrac{232\cdot6 - 75\cdot8}{0\cdot5}$

....

....

[1]

    (b) $8\cdot6^2 - \sqrt{40\cdot2 + 51\cdot96}$

....

....

....

....

[2]

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

"Cuppa - Jo" smooth roast coffee is sold in a variety of sizes.

200 grams	100 grams	400 grams
£5.60	£3	£11.80

Decide which size of "Cuppa - Jo" smooth roast coffee is the best buy and why.
You must show the calculations that support your decision.

....

....

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....

....

....

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....

....

[6]

11. *(a)*

$\left(\times 2{\cdot}5\right)$ $\left(\times 25\right)$ $\left(\times 1{\cdot}4\right)$ $\left(\times 0{\cdot}25\right)$ $\left(\times 0{\cdot}4\right)$

From the list above,

(i) select the multiplier that is used to find 25% of a value.

....

....

[1]

(ii) select the multiplier that will **increase** a value by 40%.

....

....

[1]

(b) (i) Susan says that $30 - 6 \div 2$ is 12.
Susan is incorrect.
The correct answer is 27.
Explain the mistake that Susan has made.

....

....

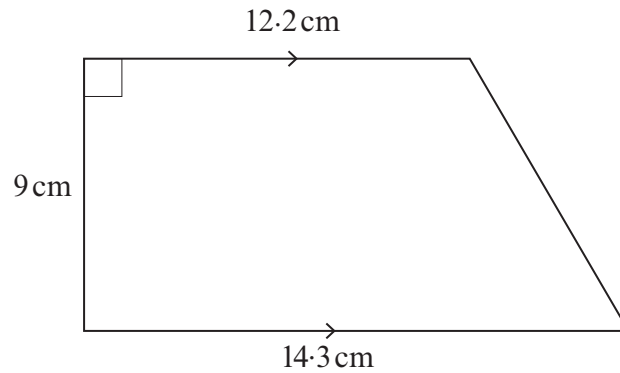...

[1]

(ii) Place $+$, $-$, $\times$ or $\div$ into the following to make it true.

$$12 \quad \text{........} \quad 8 \quad \text{........} \quad 3 \quad = \quad 36$$

[1]

12. *(a)*

12·2 cm

9 cm

14·3 cm

Diagram not drawn to scale

Calculate the area of the trapezium shown above giving the units for your answer.

....

....

....

....
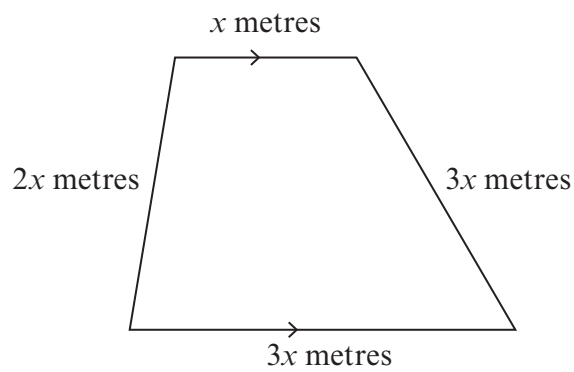
[3]

(b)

x metres

2*x* metres

3*x* metres

3*x* metres

Diagram not drawn to scale

The perimeter of this trapezium is 108 metres.
Find the length of each side of this trapezium.

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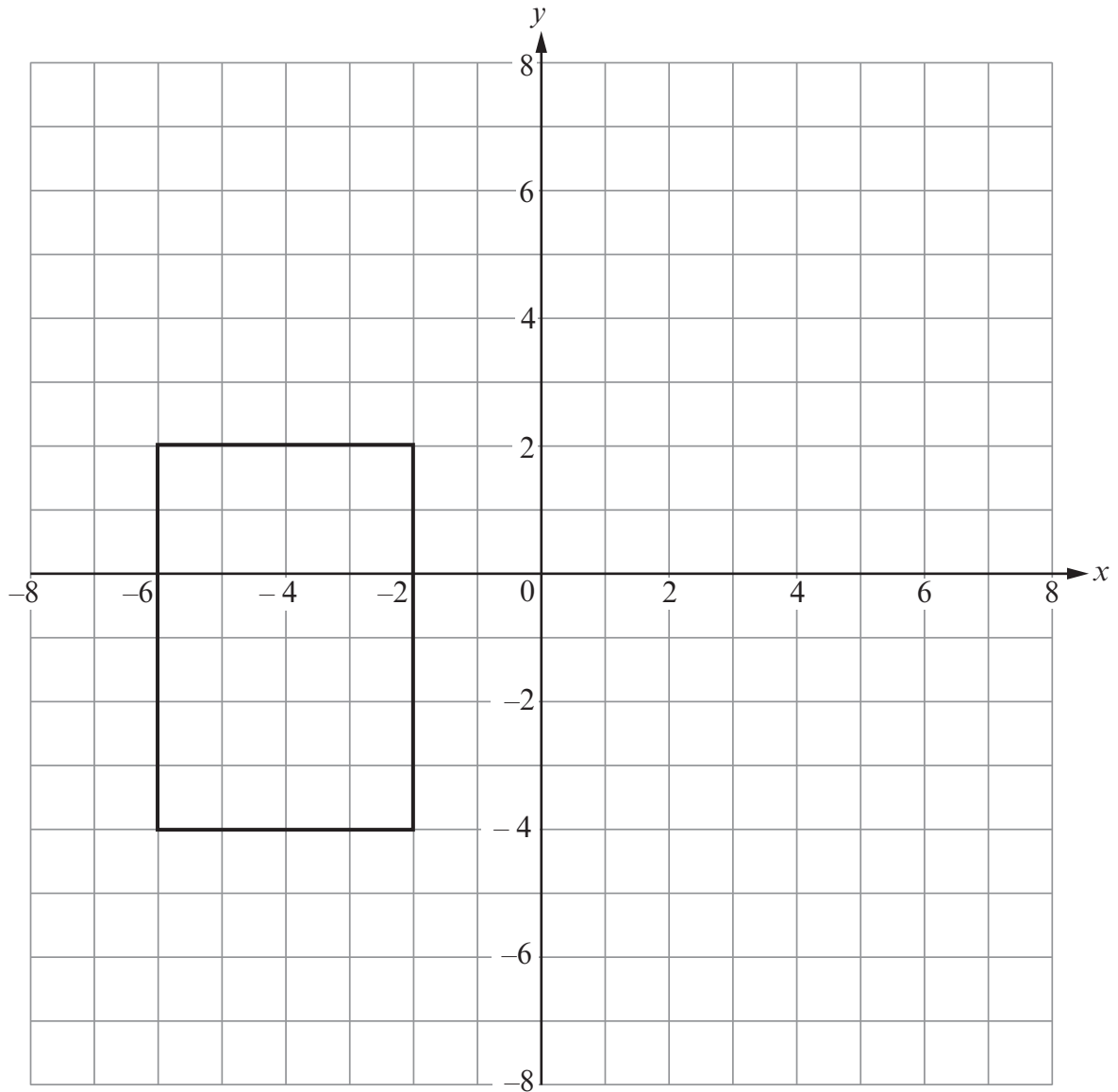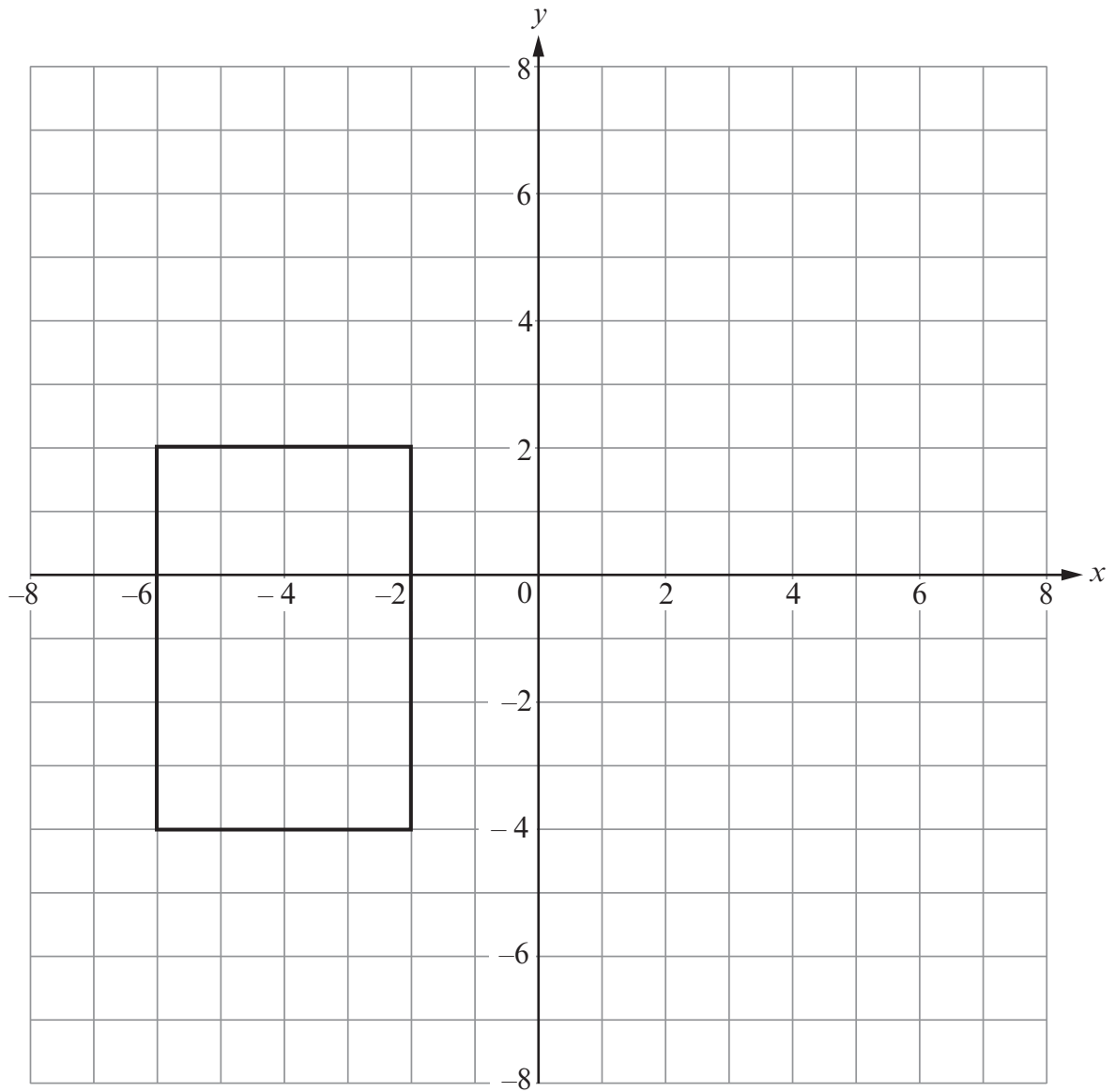
[3]

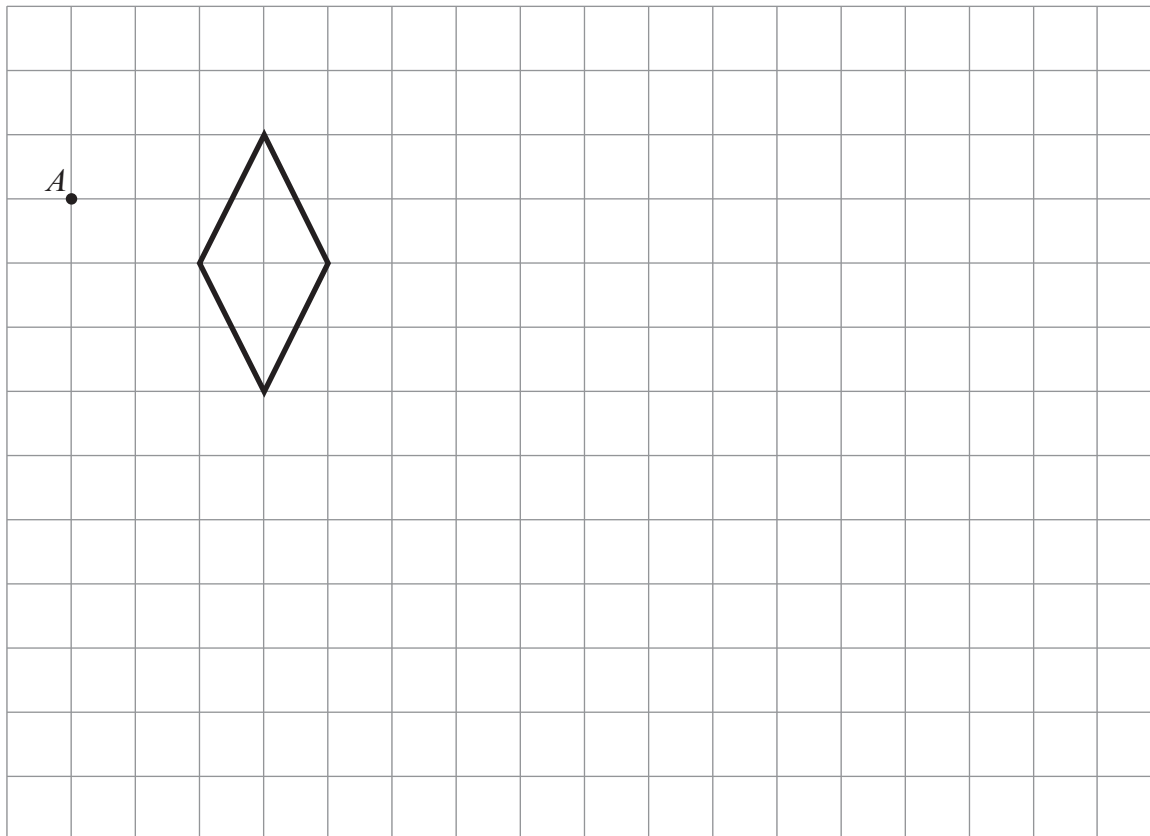**13.** *(a)* Translate the rectangle shown below by $\begin{pmatrix} 2 \\ 4 \end{pmatrix}$.

[1]

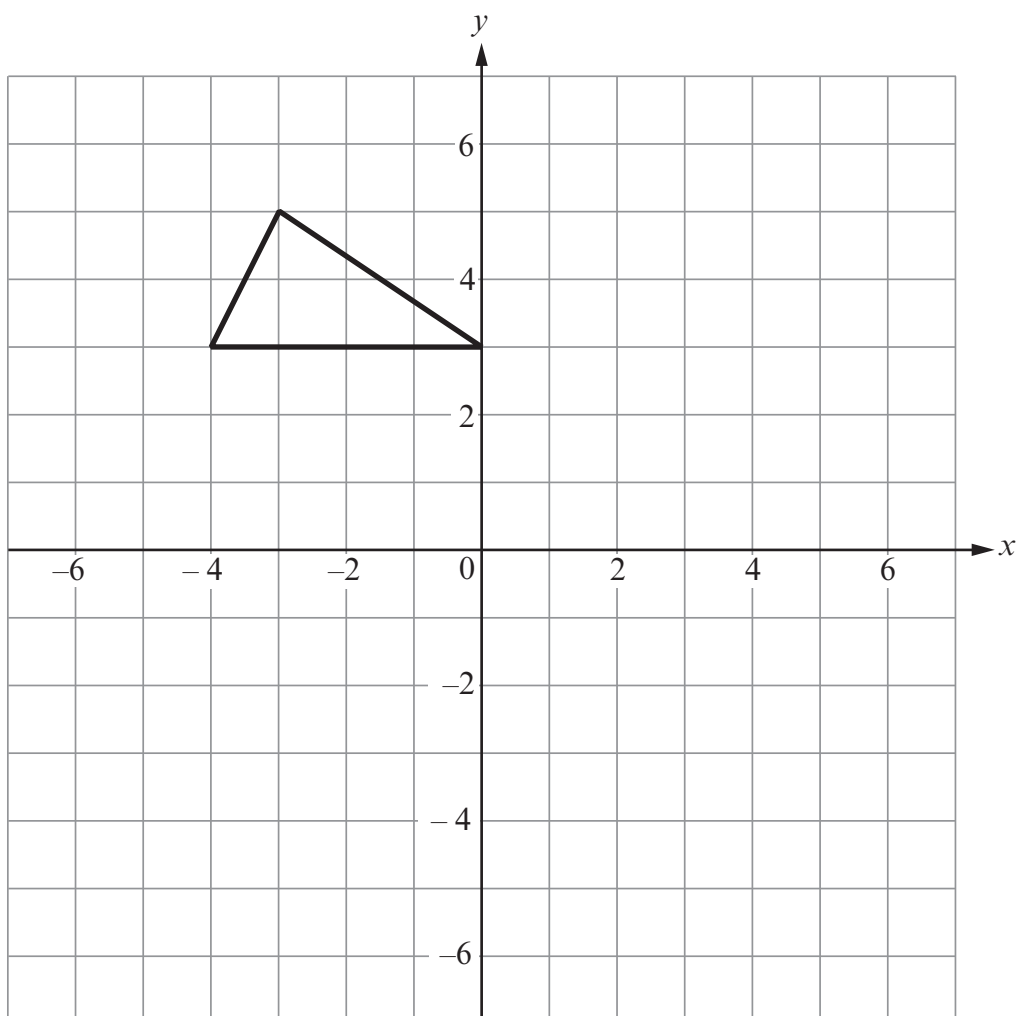*(b)* Rotate the rectangle shown on the grid below through 90° clockwise about the origin.

[2]

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

[3]

(d) Reflect the triangle in the line $x = 1$.

[2]

Turn over.

14. Solve the inequality $3x - 4 < 26$.

....

....

....
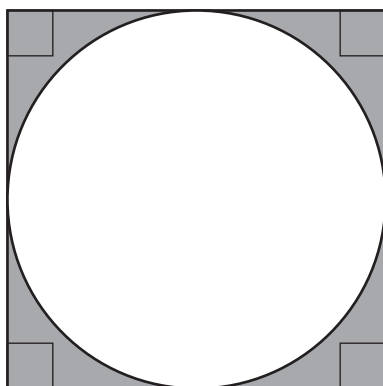
[2]

15.

Diagram not drawn to scale

In the diagram above, the circle has a diameter of 12 cm.
Calculate the area of the shaded part.

....

....

....

....

....

....

....

....

....

[4]

16.

A — 11 cm — B

18 cm

C
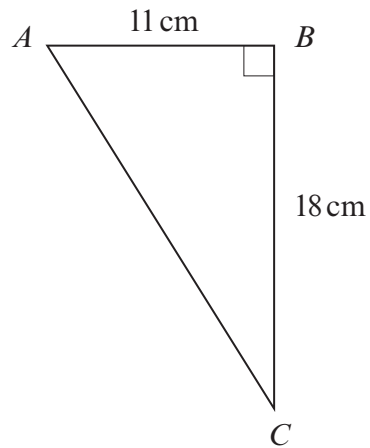
Diagram not drawn to scale

Calculate the length of the side *AC*.

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....

....

[3]

END OF PAPER

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