testbase

Week 25
Reflections and Translations

Name: _____

Class: _____

Date: _____

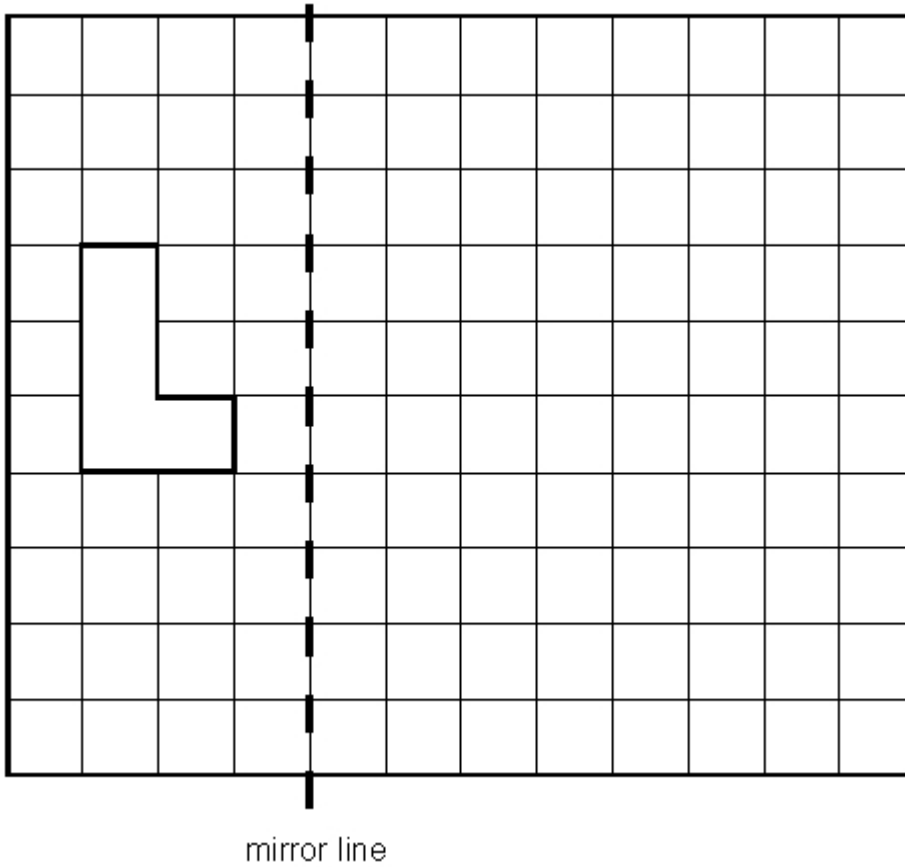Time: **56 minutes**

Marks: **55 marks**

Comments:

1 On the grid, draw the **reflection** of the shape **in the mirror line.**
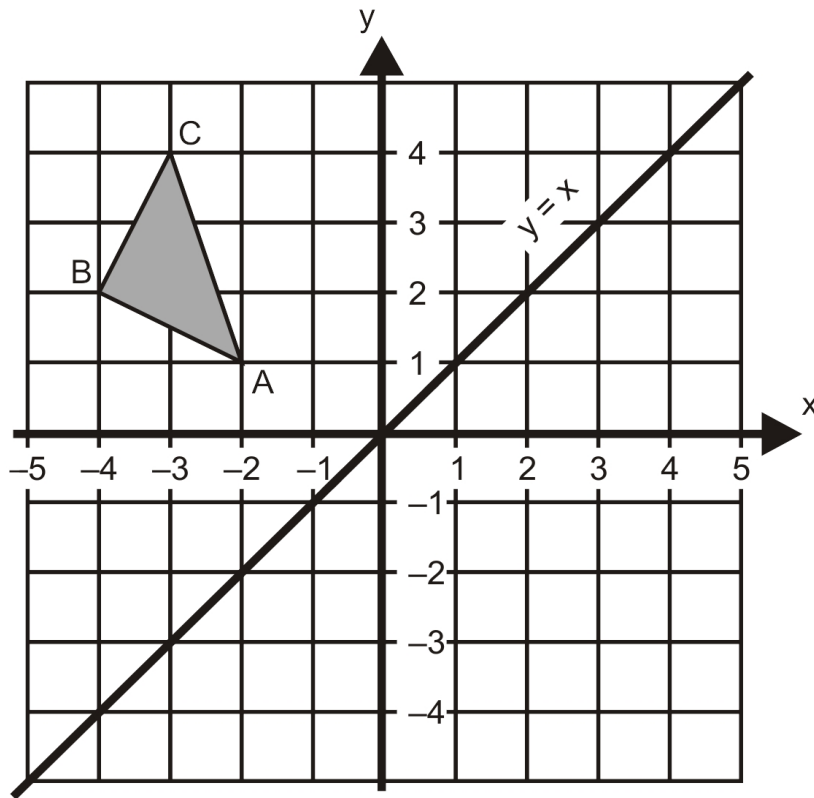
You may use a mirror and tracing paper.

mirror line

2 The diagram shows the triangle **ABC** and the line **y = x**.

Draw the triangle **PQR** which is the **reflection** of the triangle **ABC** in the line **y = x**.
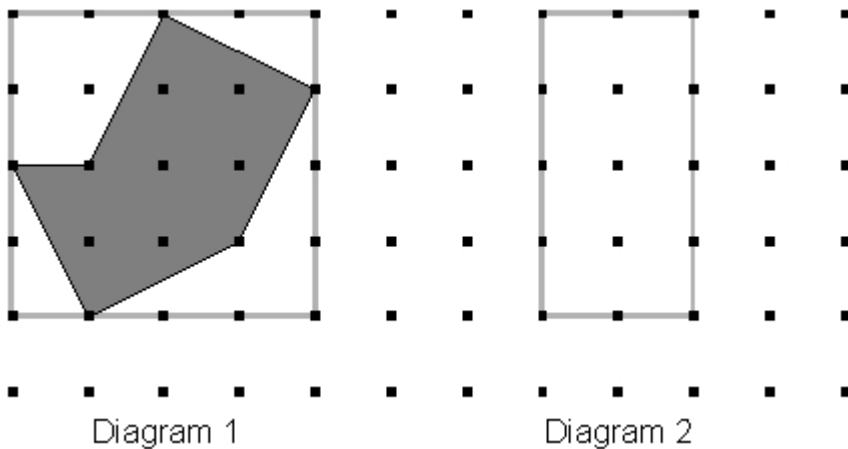

2 marks

3 Diagram 1 is a design for a floor tile.

The design is transformed so that the **width** is multiplied by a scale factor of $\frac{1}{2}$.
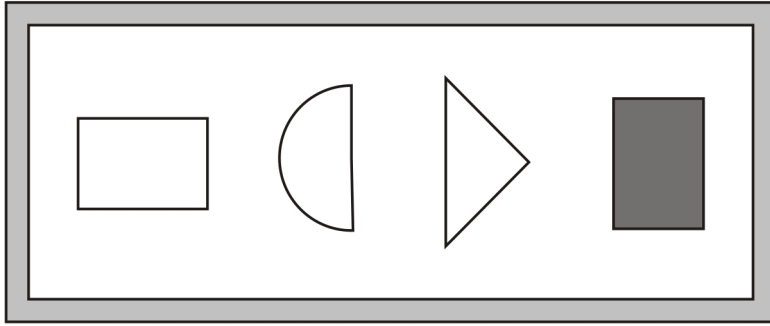
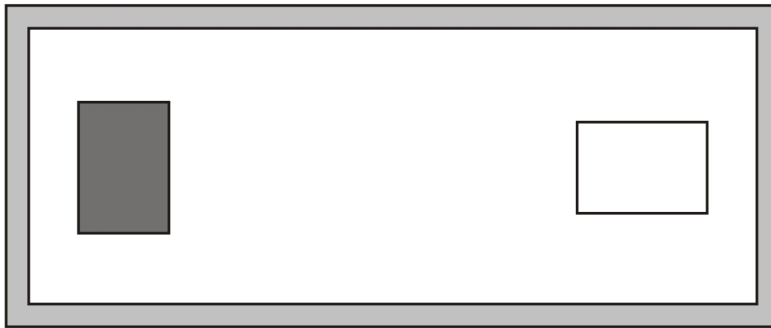Draw the **outline** of the transformed shape in Diagram 2

Diagram 1   Diagram 2

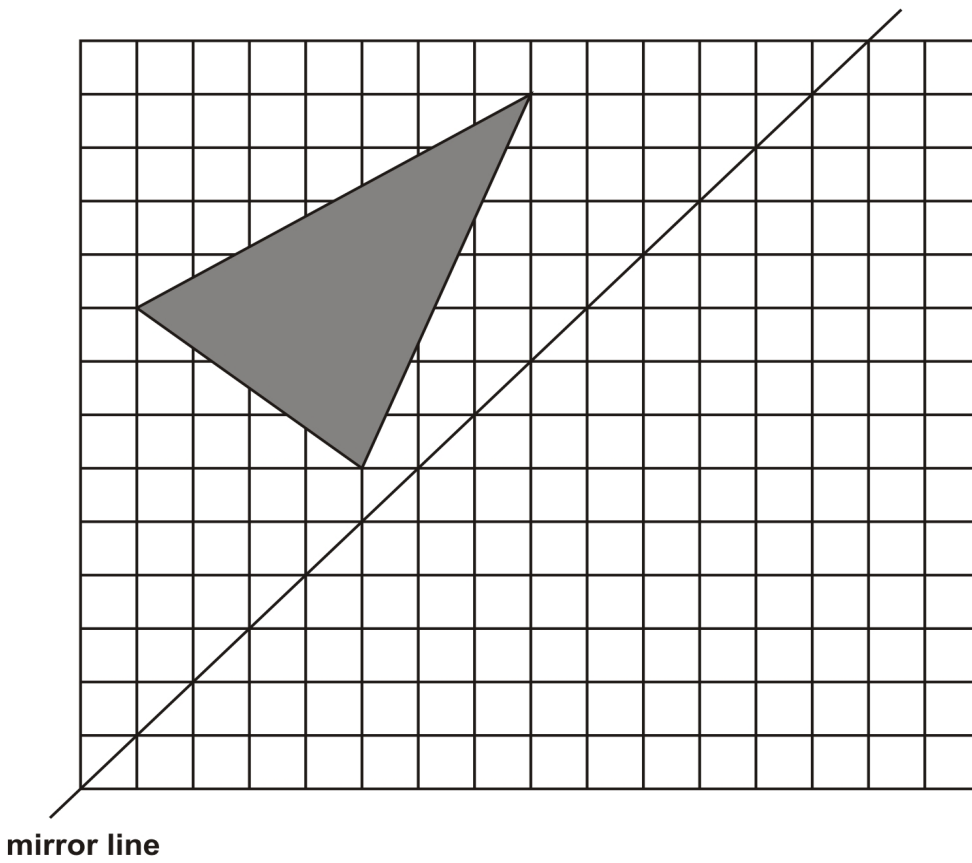2 marks

4   Here is a pattern on a window.

Draw how the pattern would look from the **other side** of the window.

2 marks

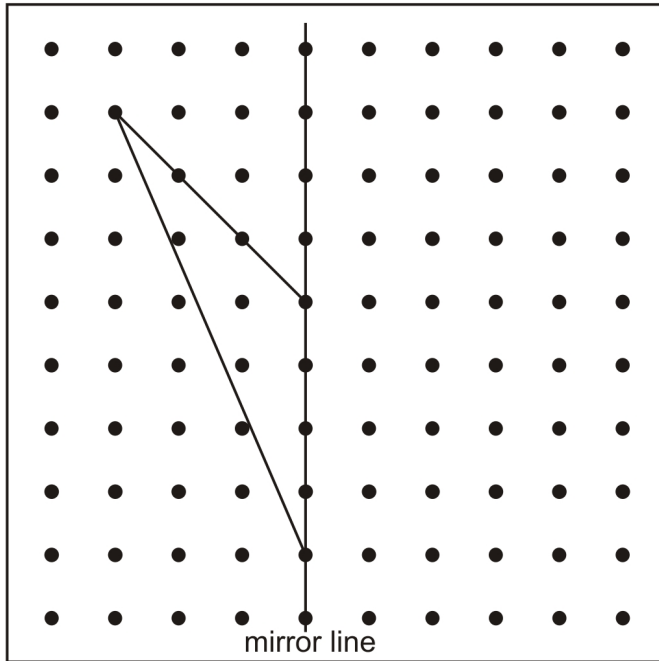**5** Draw the **reflection** of the shaded triangle in the mirror line.

mirror line

2 marks

6

Draw the **reflection** of this triangle in the mirror line.

You may use a ruler.

You may use tracing paper.
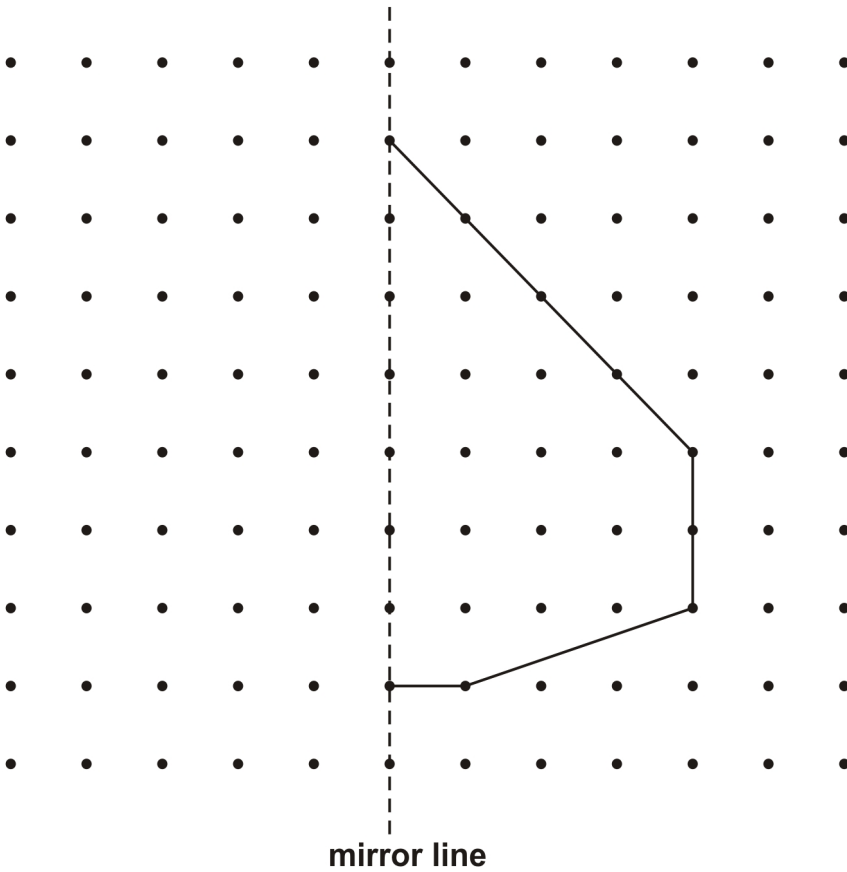

mirror line

1 mark

7 Draw in the reflection of the shape in the mirror line.

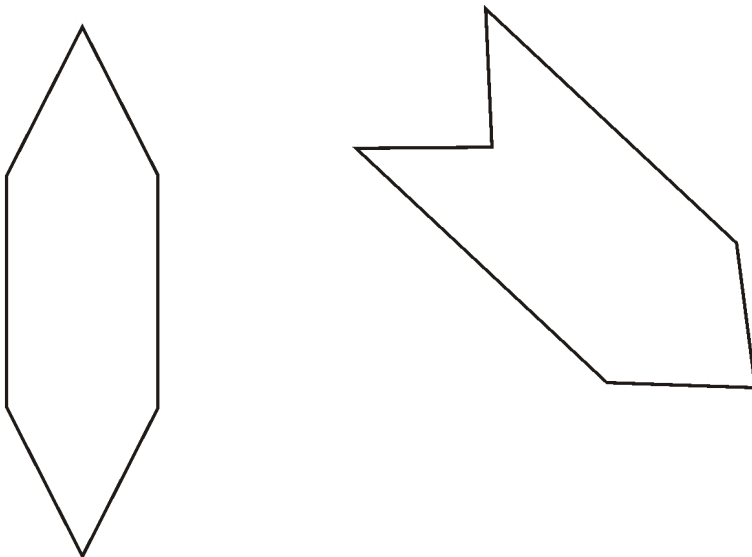You may use a mirror and tracing paper.

mirror line

1 mark

8 Each of these shapes has one or more **lines of symmetry**.
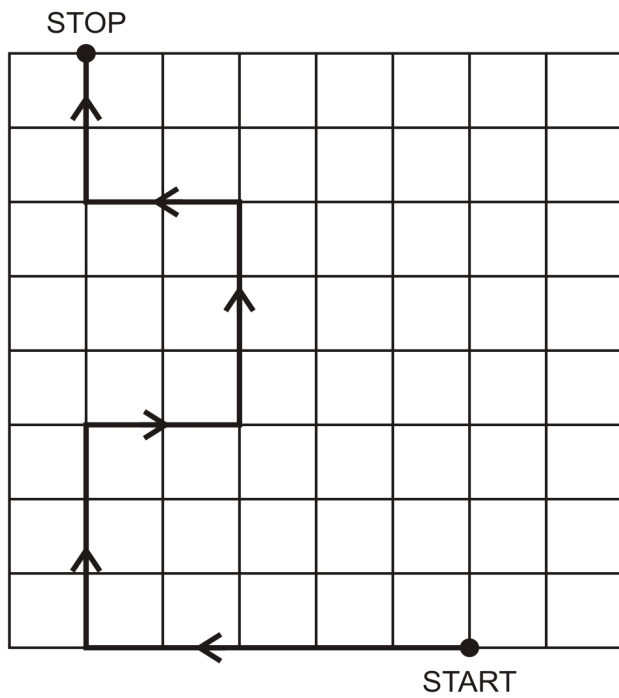
Draw **all** the **lines of symmetry** on each shape.

1 mark

9 Follow this route with your pencil.

STOP

START

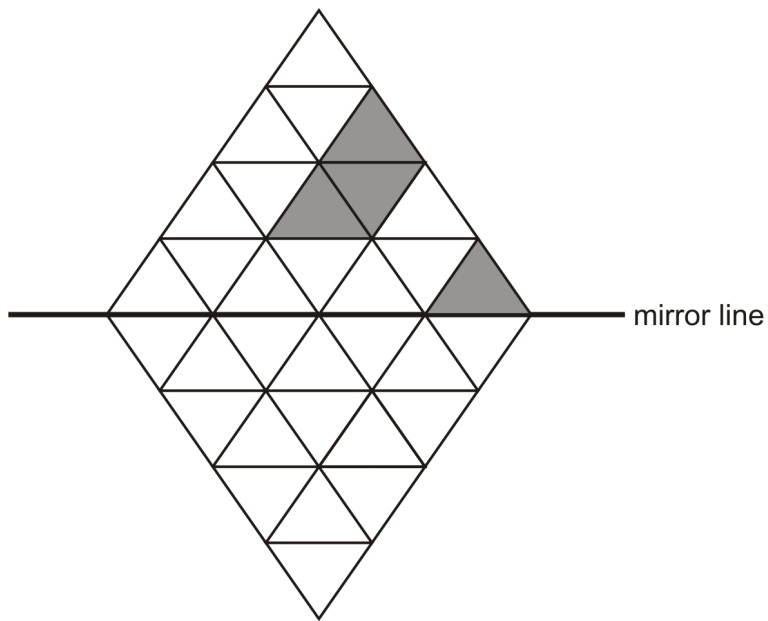Complete this chart showing the route from START to STOP.

START
left 5
up 3
right 2

_____

_____

_____

STOP

1 mark

10 Shade in the reflection of this shape.

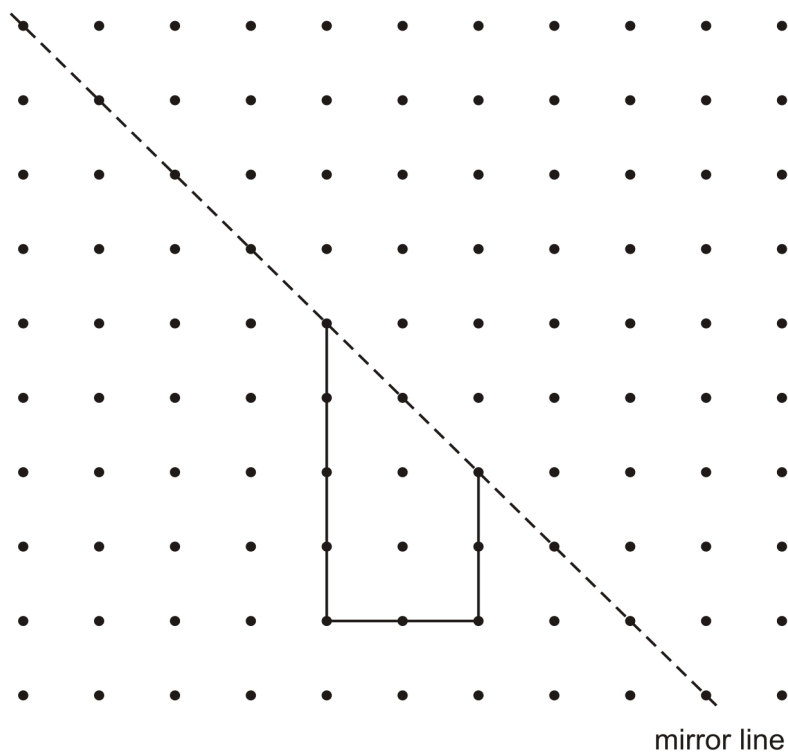You may use a mirror.

mirror line

1 mark

11 Use a ruler to draw the **reflection** of this shape in the mirror line.
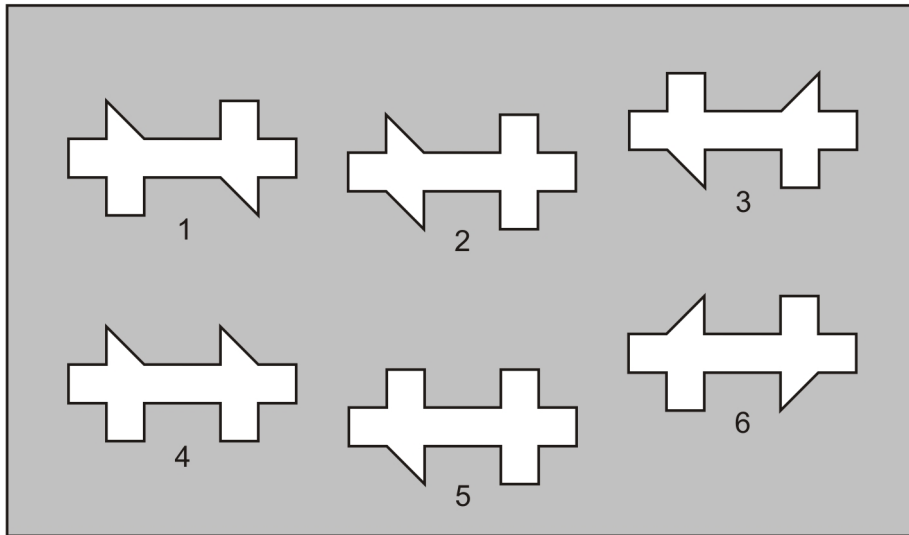
You may use a mirror or tracing paper.

mirror line

1 mark

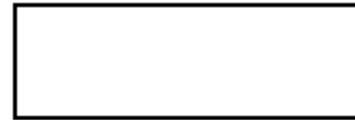**12** This board has six holes cut in it.

Here is a shape cut out of card.

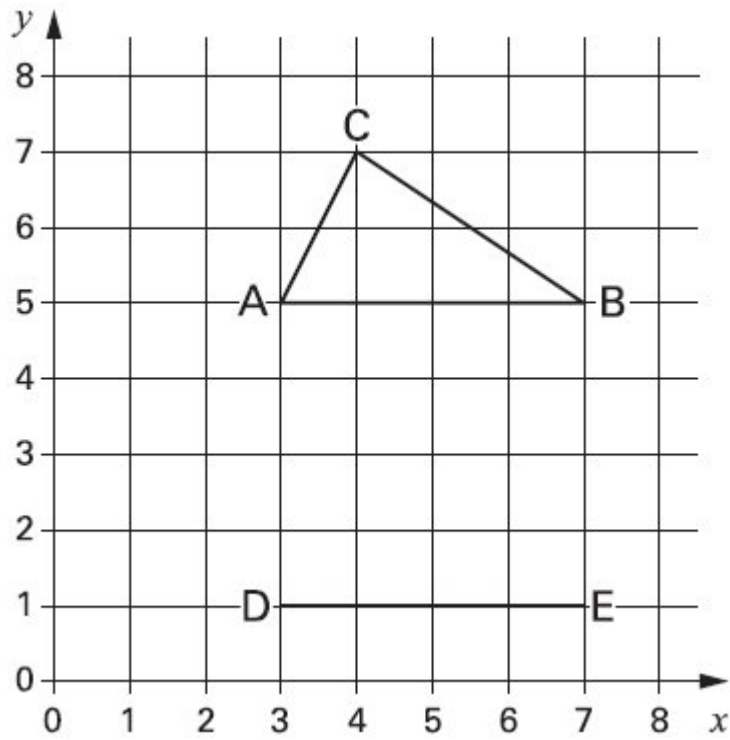Which hole will the shape fit exactly into?

You may use tracing paper.

1 mark

13 Kyle has drawn triangle **ABC** on this grid.

Holly has started to draw an **identical** triangle **DEF**.
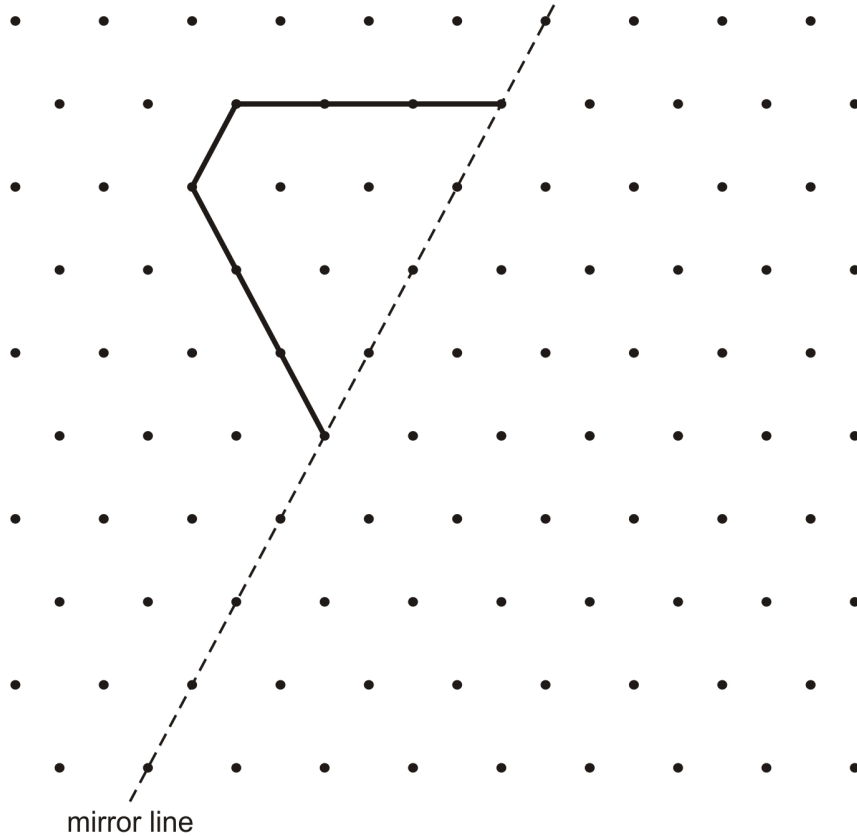
What will be the coordinates of point **F**?

(4 , 3)

1 mark

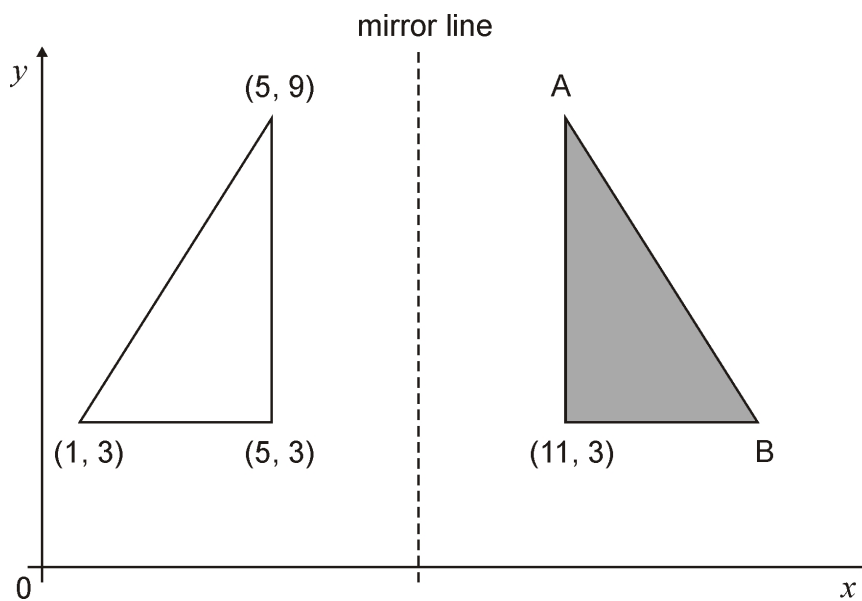**14** Draw the **reflection** of the shape in the **mirror line.**

Use a ruler.

You may use a mirror or tracing paper.

mirror line

1 mark

15 The shaded triangle is a reflection of the white triangle in the mirror line.

mirror line

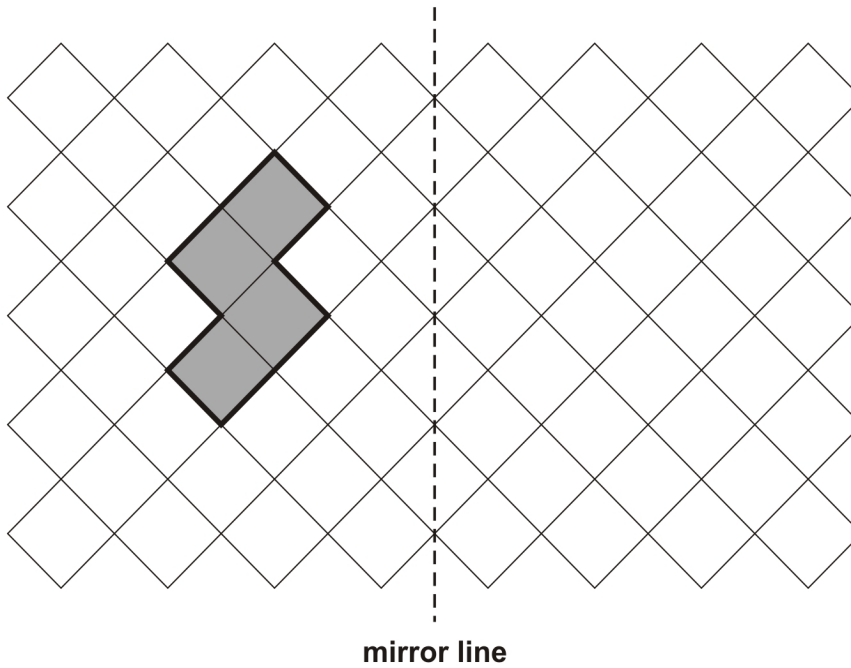Write the **co-ordinates** of point **A** and point **B**.

A is (,   )

B is (,   )

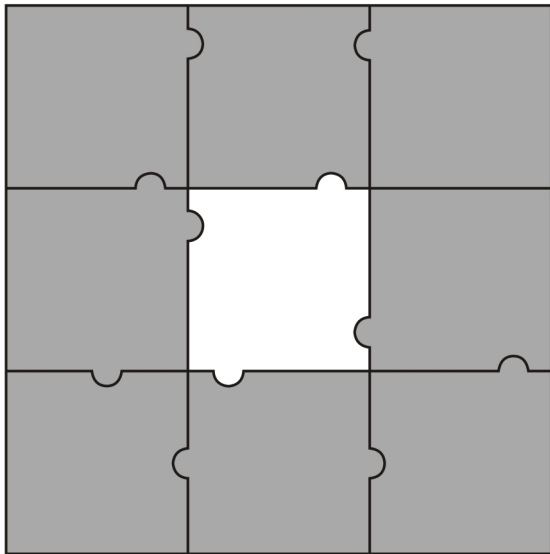**16** Draw the **reflection** of the shaded shape in the mirror line.

You may use a mirror or tracing paper.
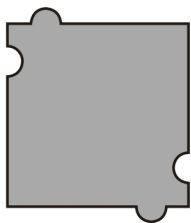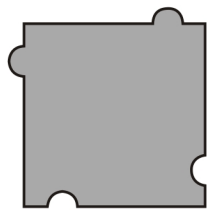

mirror line

1 mark

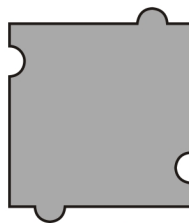**17** Here is a jigsaw with one piece **missing**.

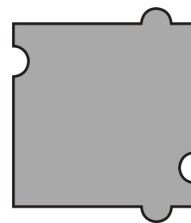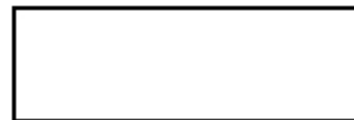Which **one** of the pieces below fits the hole in the middle?

A   B   C   D
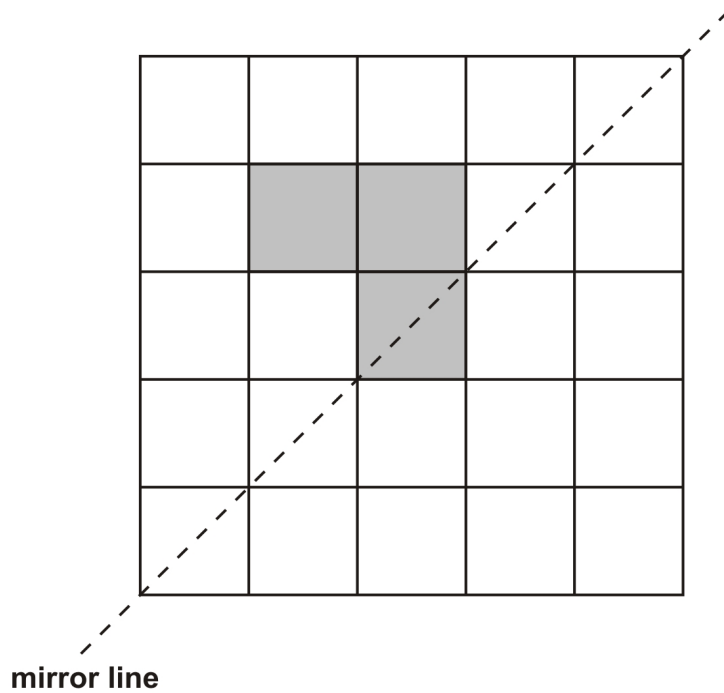
1 mark

18 Shade in **two more squares** to make this design symmetrical about the mirror line.

You may use a mirror or tracing paper.

mirror line

1 mark

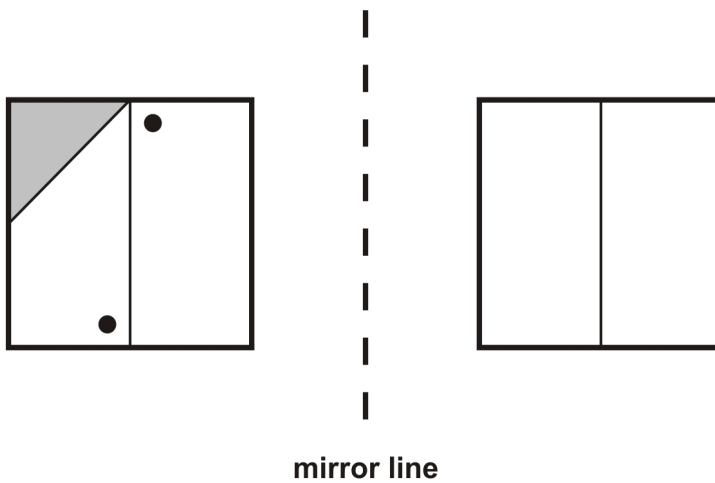**19** Here is a square with a design on it.

The square is reflected in the mirror line.

Draw the missing triangle and dots on the reflected square.
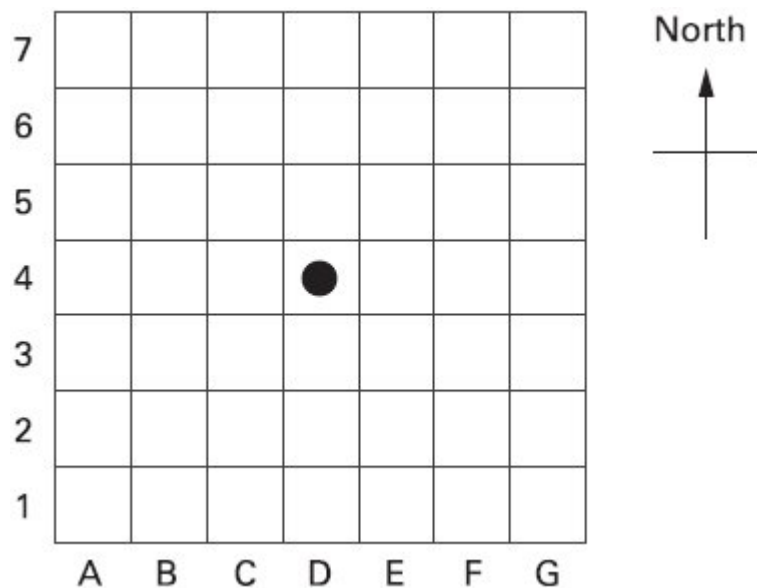
You may use a mirror or tracing paper.

mirror line

1 mark

20 Lisa places a counter on square **D4**
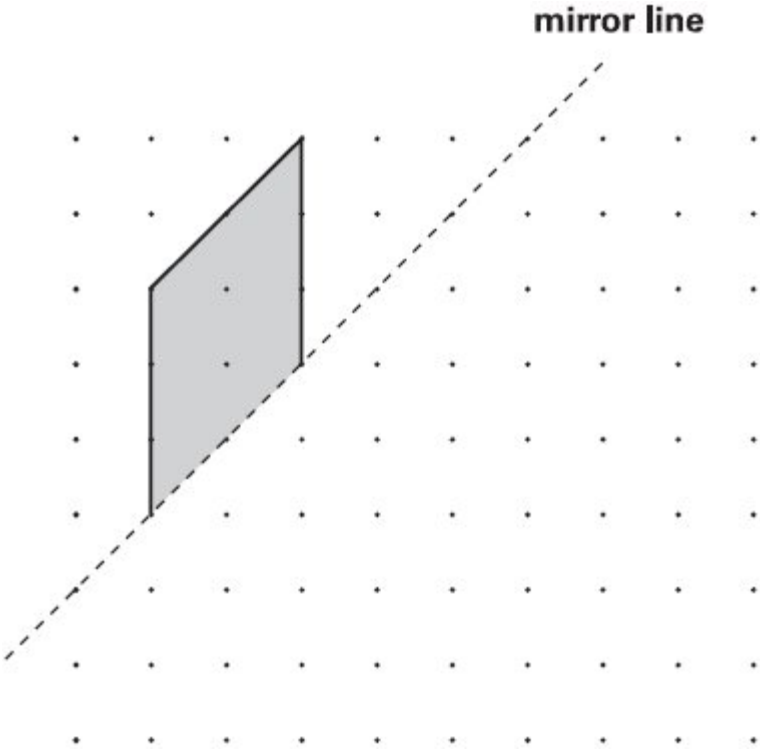

North

She moves it 2 squares east and 3 squares south.

Write the position of the square she moves it to.

1 mark

Draw the **reflection** of the shape in the **mirror line**.
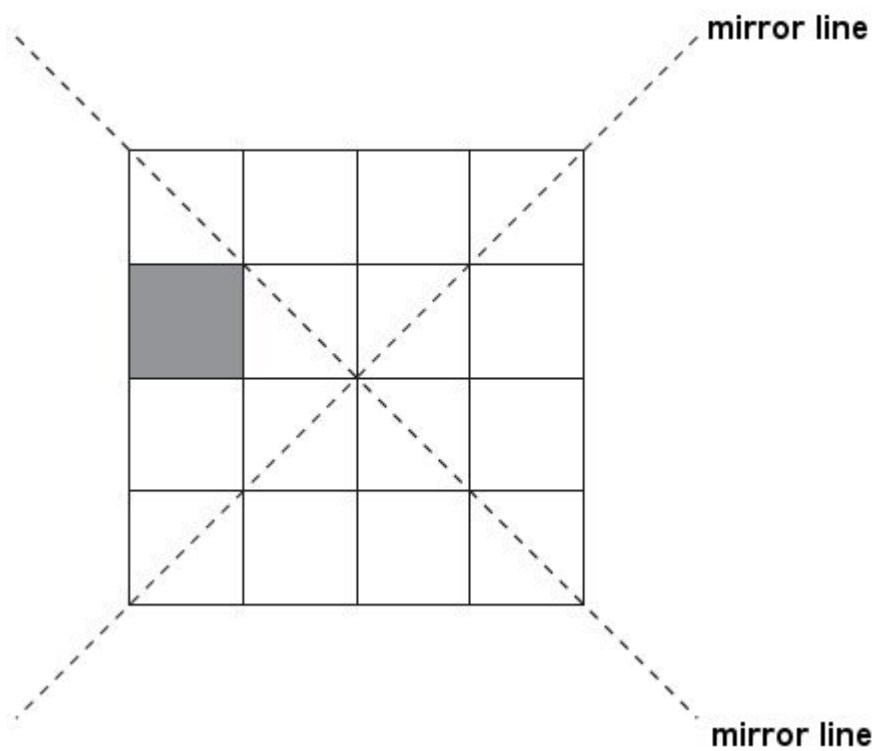
Use a ruler.

mirror line

1 mark

22 Here is a shaded square on a grid.

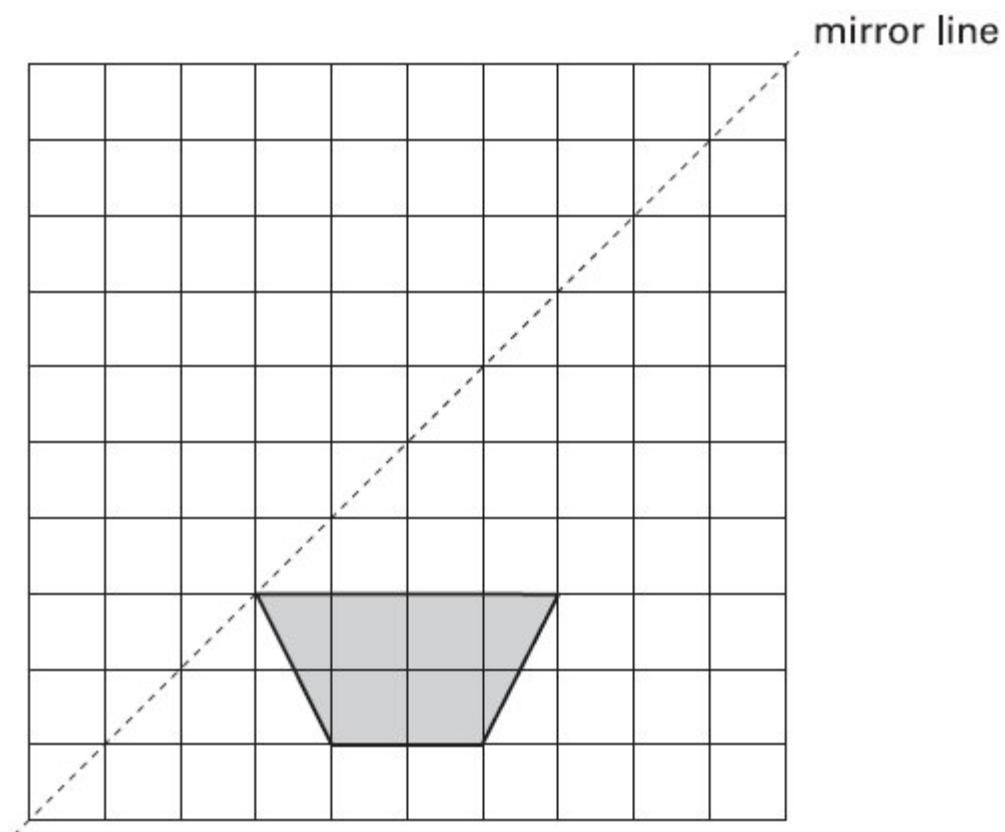Shade in **3 more squares** so that the design is symmetrical in **both** mirror lines.

1 mark

23 Draw the reflection of this shape.

mirror line

1 mark

24 Here is half of a symmetrical picture.
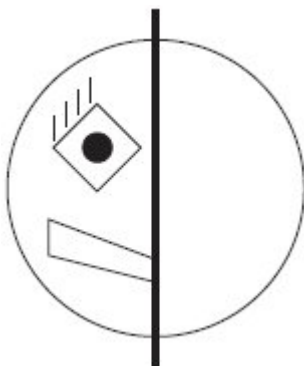
Which of these is the reflection of the picture?
Write its letter.
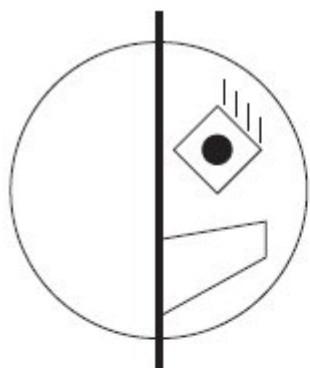
A
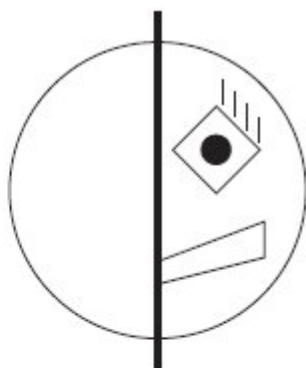
B
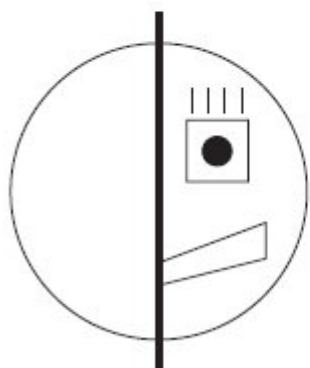
C
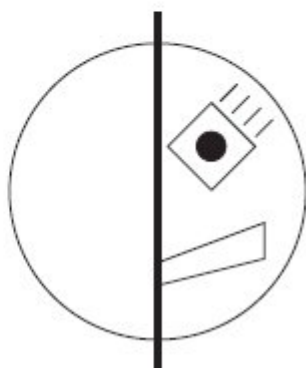
D

_____

1 mark

25 Here is a design and a mirror line.
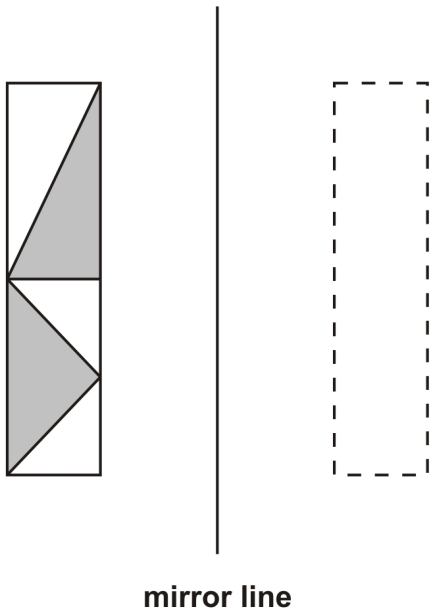
mirror line

Which **one** of the designs below is the reflection of the design in the mirror line?

Tick (✓) the correct design.
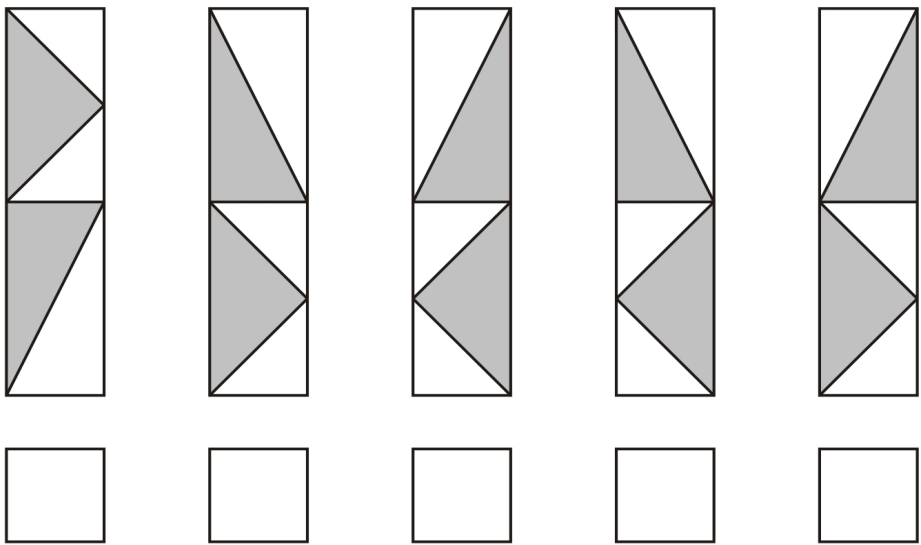
1 mark

26 Shade **two** squares and **one** triangle to make this design symmetrical about the mirror line.
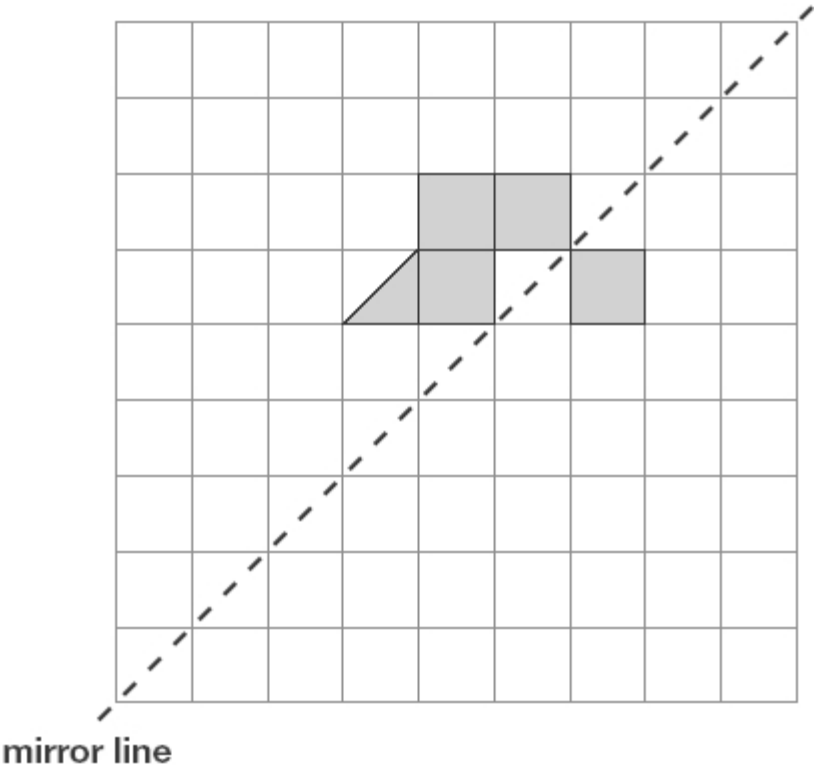
mirror line

1 mark

27 Complete the diagram below to make a shape that is symmetrical about the mirror line.

Use a ruler.
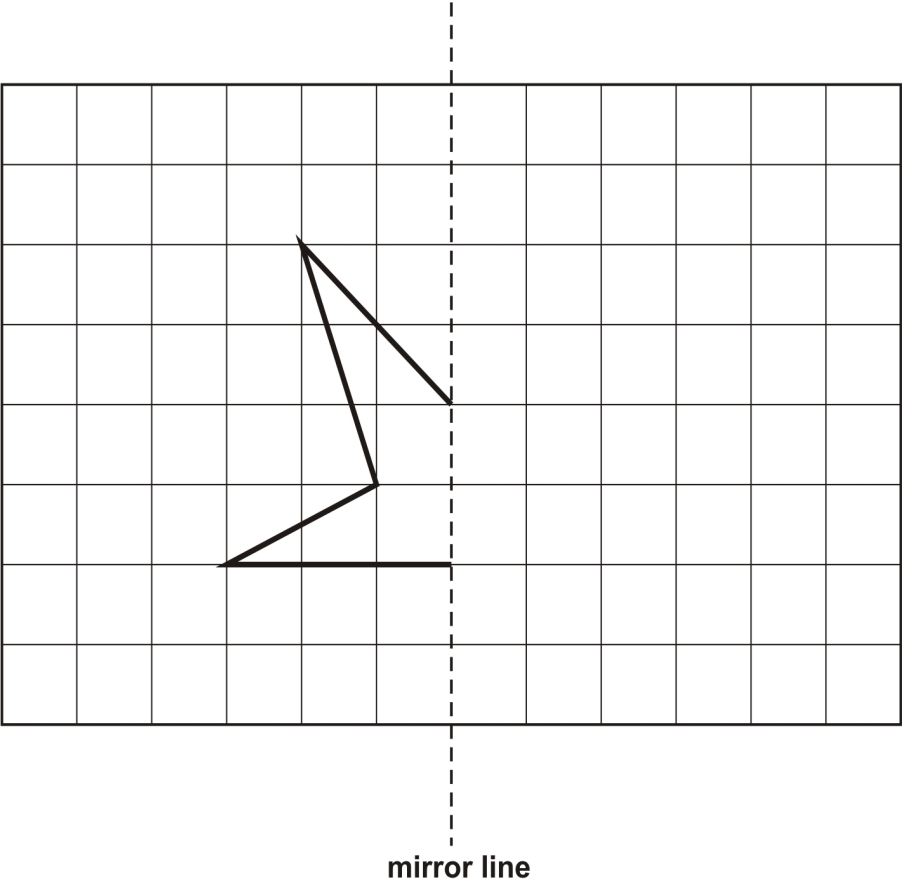
mirror line

1 mark

28 Complete the diagram below to make a shape that is symmetrical about the mirror line.
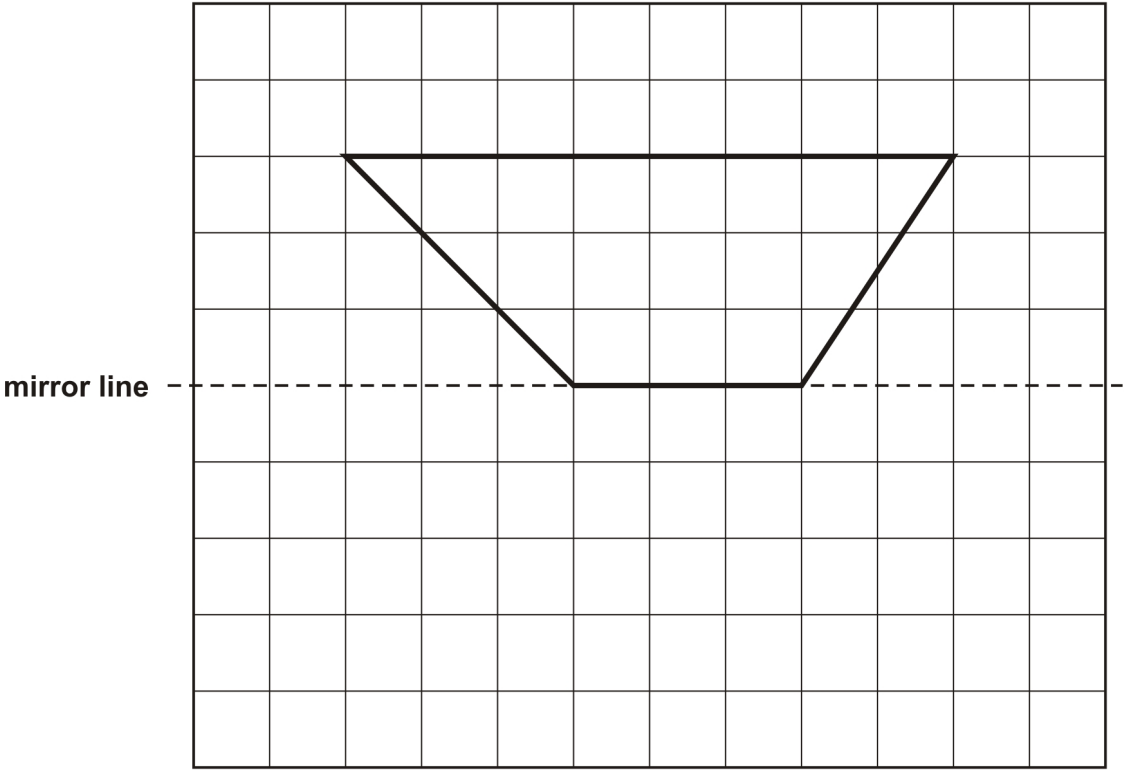
Use a ruler.

1 mark

29 This grid is made of hexagons.

Draw the reflection of the shaded shape on the grid.

mirror line
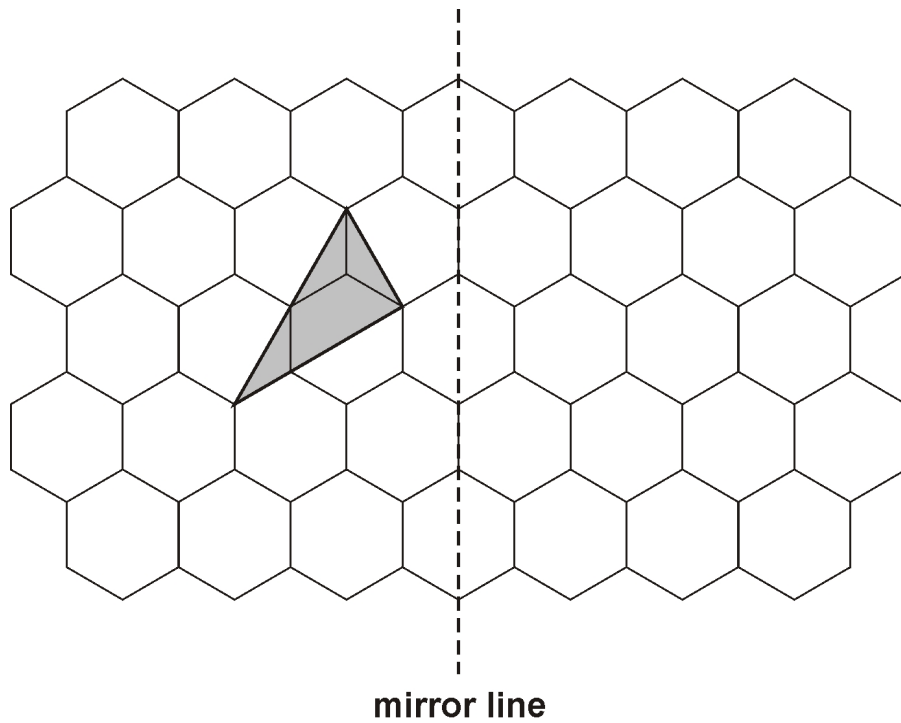
1 mark

30 Here is part of a shape on a square grid.

Draw **two more** lines to make a shape which has a line of symmetry.

Use a ruler.
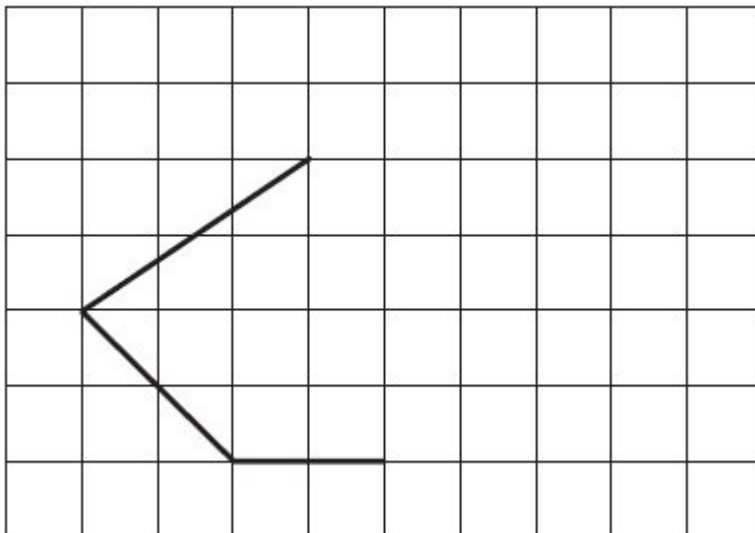
1 mark

31 Here is a triangle on a square grid.

The triangle is translated so that point **A** moves to point **B**.

Draw the triangle in its new position.
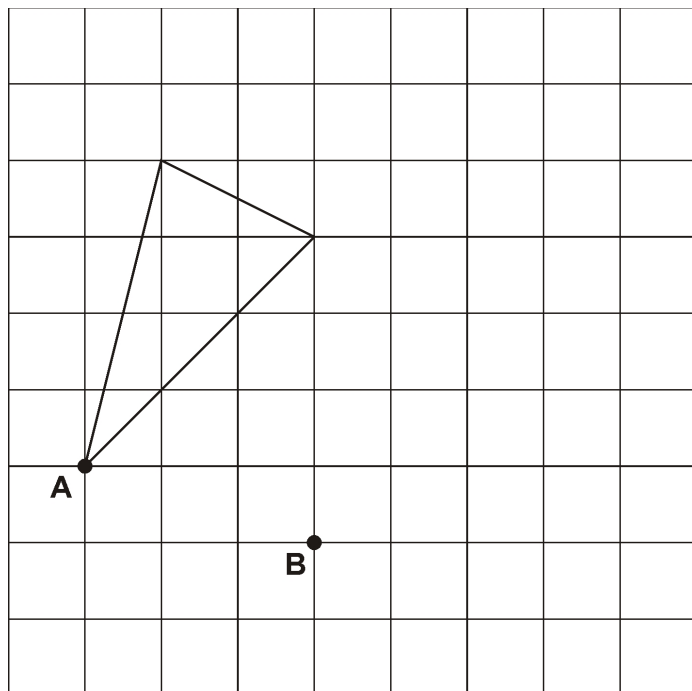
Use a ruler.

1 mark

32 Draw the reflection of the shaded shape in the mirror line.
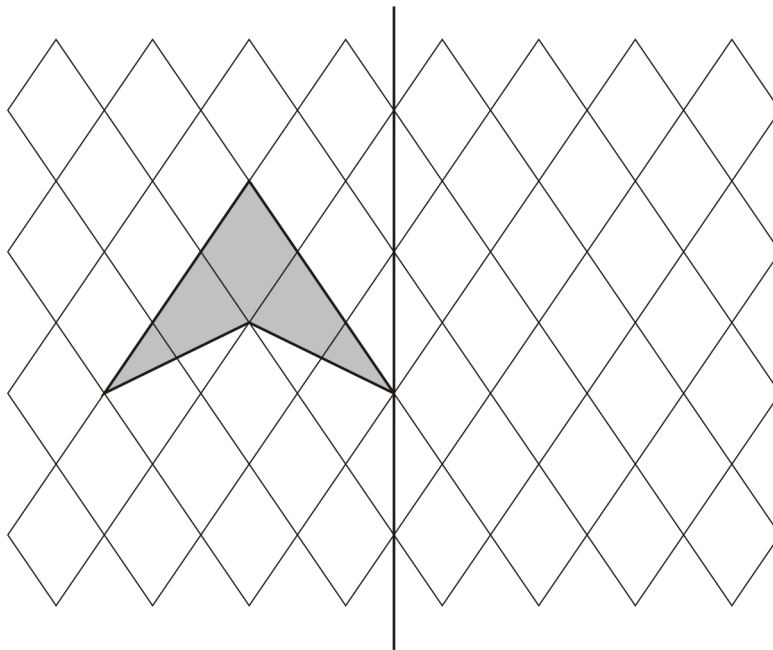
Use a ruler.

mirror line

1 mark

33 Draw **two** more circles on this grid to make a design that has a line of symmetry.
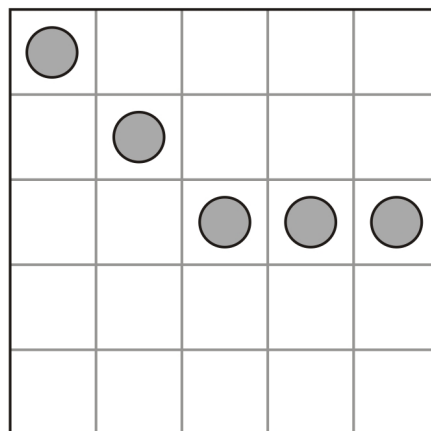
1 mark

34 Draw the reflection of the shaded shape in the mirror line.

Use a ruler.

mirror line
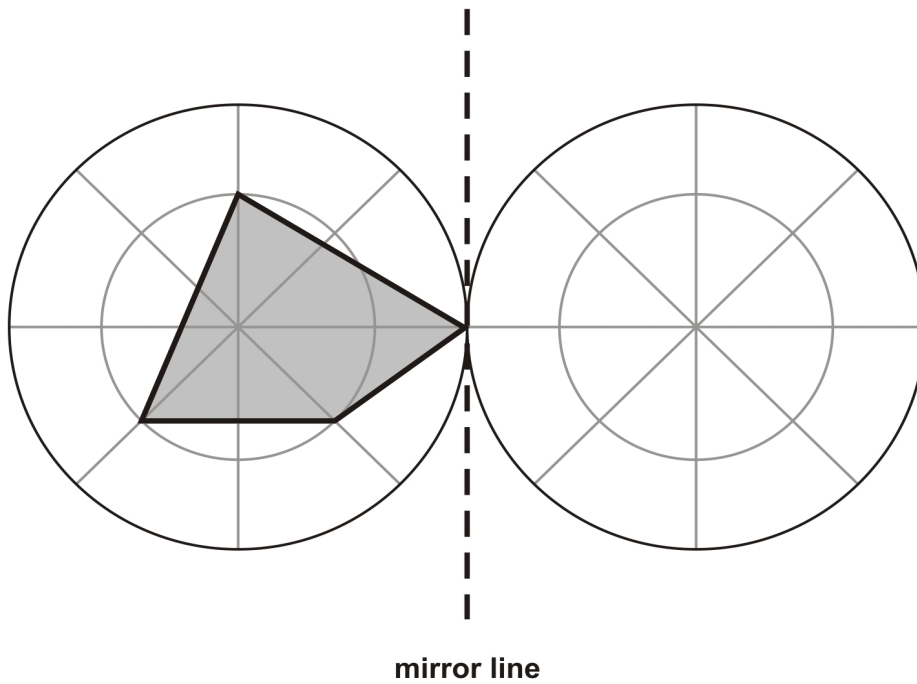
1 mark

35 Here are four shapes.
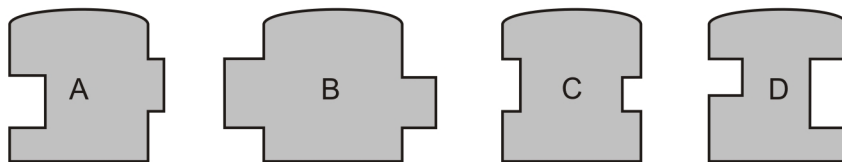
They can be fitted together in a straight line so that there are no gaps between them.

Write the order of the letters of the shapes when they all fit together.

1 mark

36 Draw the reflection of the shaded shape in the mirror line.
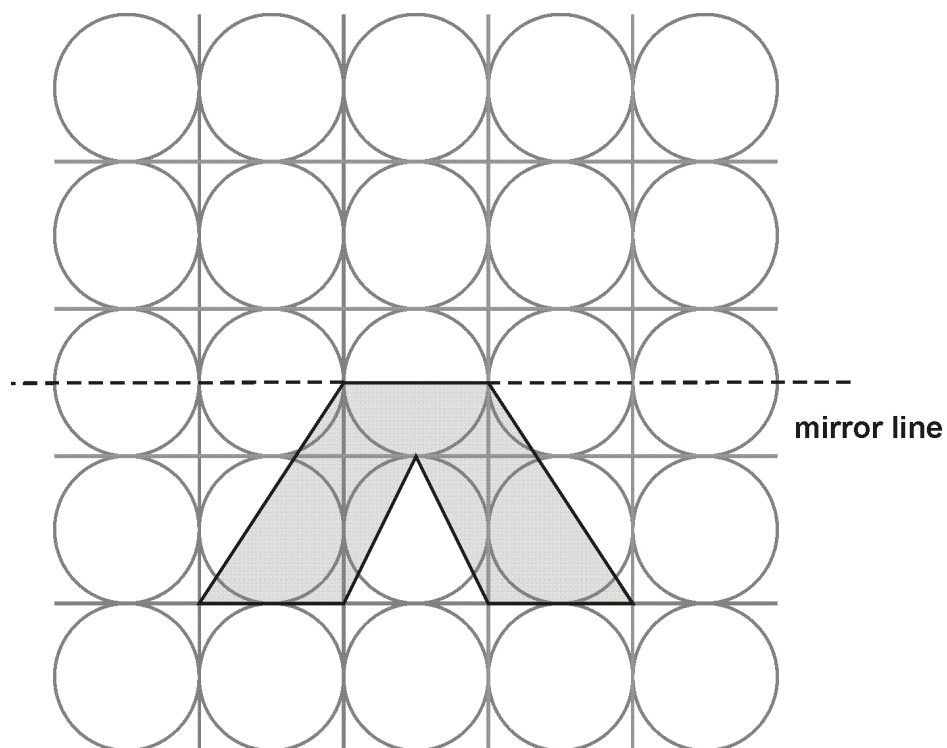
mirror line

1 mark

37 Draw the reflection of the shaded shape in the mirror line.

mirror line
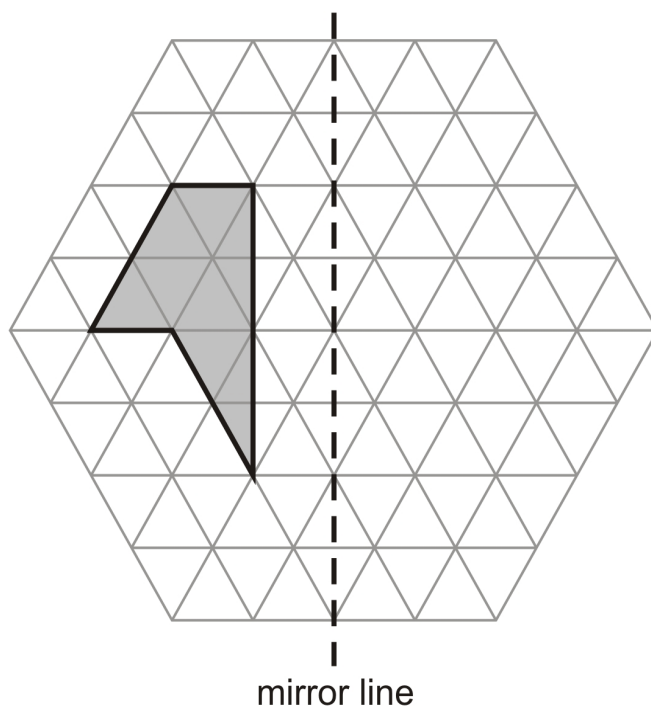
1 mark

**38** Here is a quadrilateral on a square grid.

The quadrilateral is translated so that point **A** moves to point **B**.

Draw the quadrilateral in its new position.

Use a ruler.
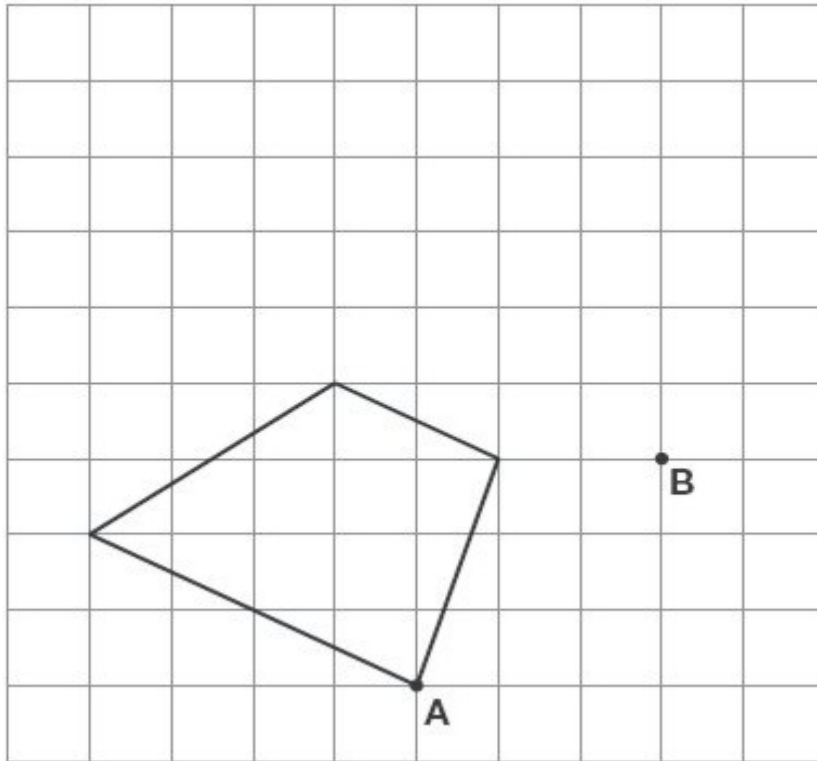
1 mark

39 Here is a triangle drawn on a coordinate grid.
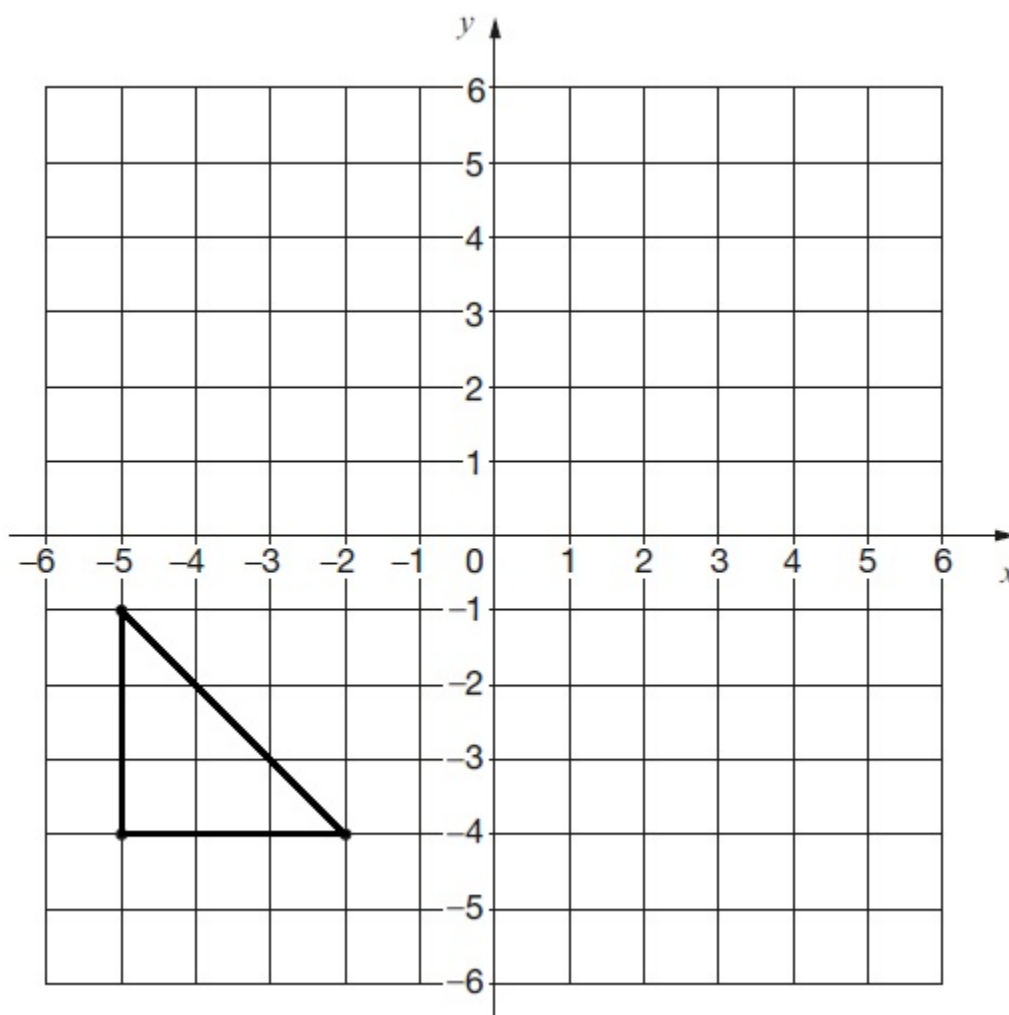
The triangle is translated **7 right** and **5 up**.

Draw the triangle in its new position.

1 mark

40 Here are some tiles on a square grid.
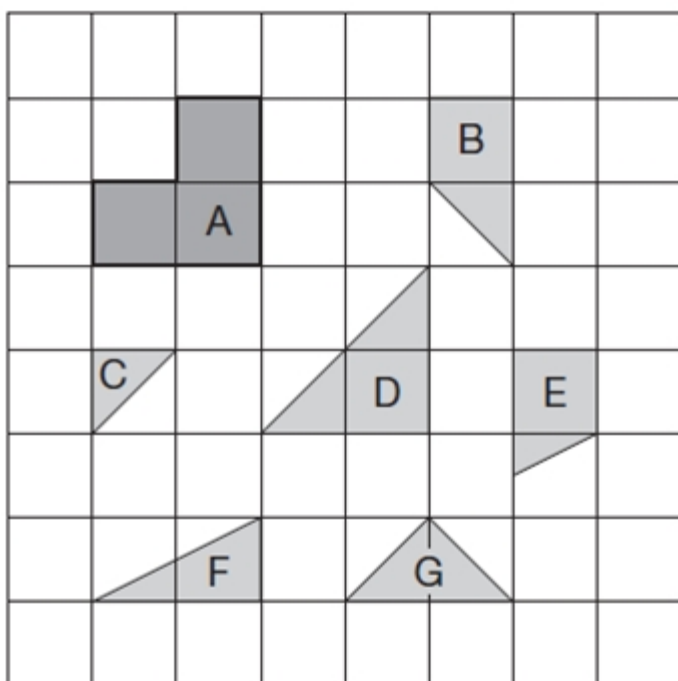
Three different tiles can be fitted together without overlapping to make a shape identical to tile **A**.

Write the letters of the three tiles.

_____ and _____ and _____

1 mark

41 A triangle is translated from position **A** to position **B**.
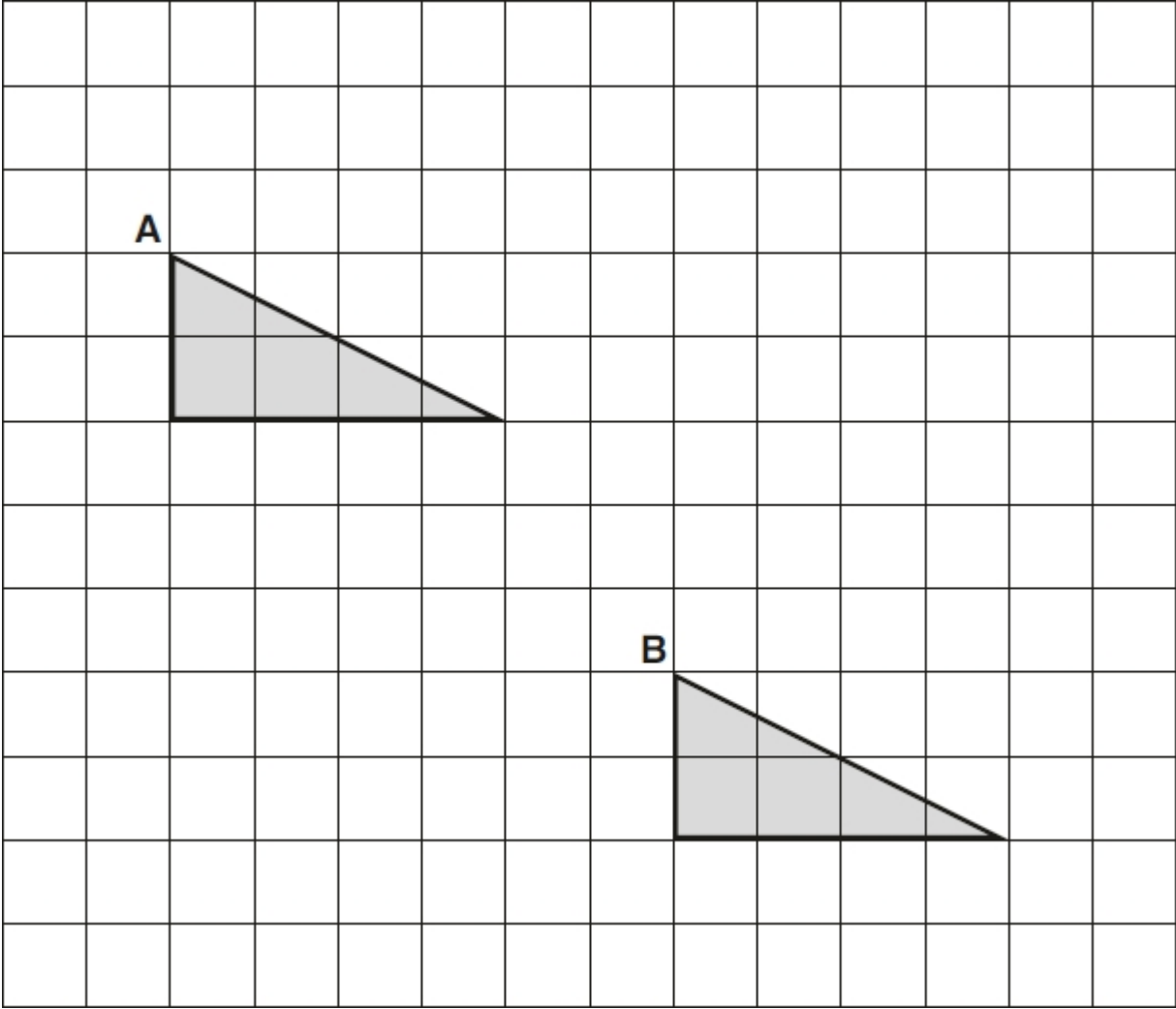
Complete the sentence.

The triangle has moved ☐ squares to the right

and ☐ squares down.

1 mark

42 Here is a design on a square grid.

Complete the design so that it is symmetrical about the mirror line.
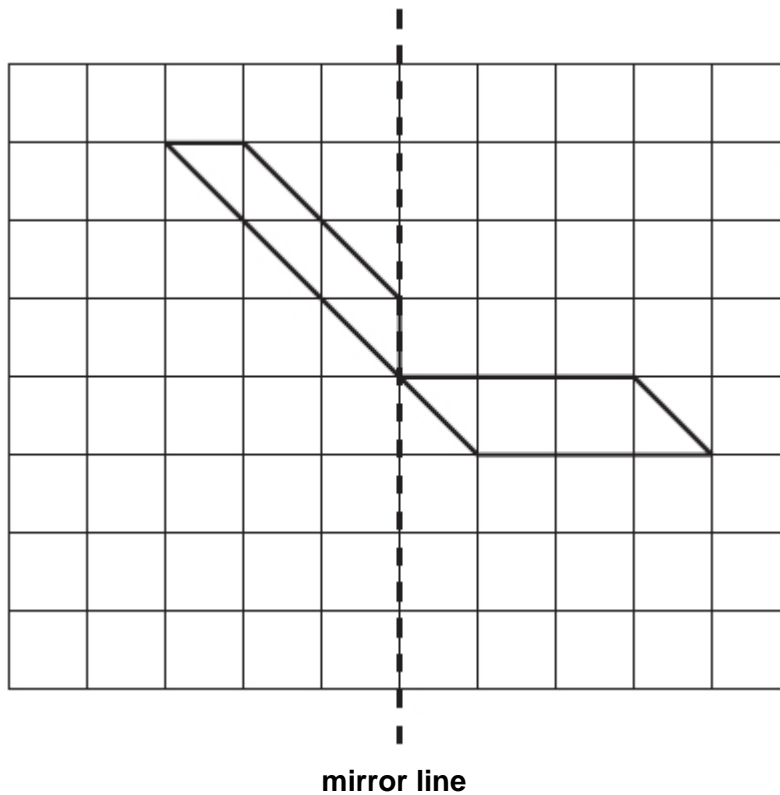
Use a ruler.

mirror line

43 Complete this shape so that it is symmetrical about the mirror line.
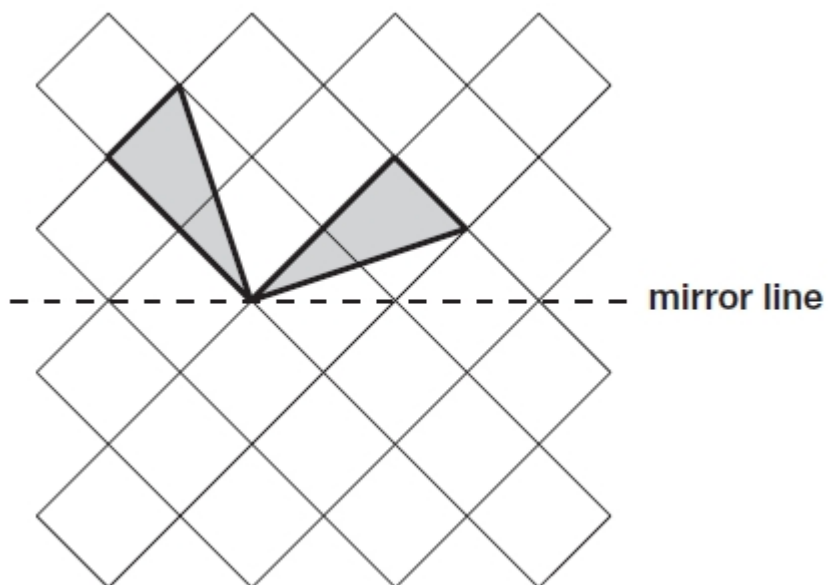
Use a ruler.

mirror line

44 Draw the reflection of **all** the shaded shapes in the mirror line.

mirror line
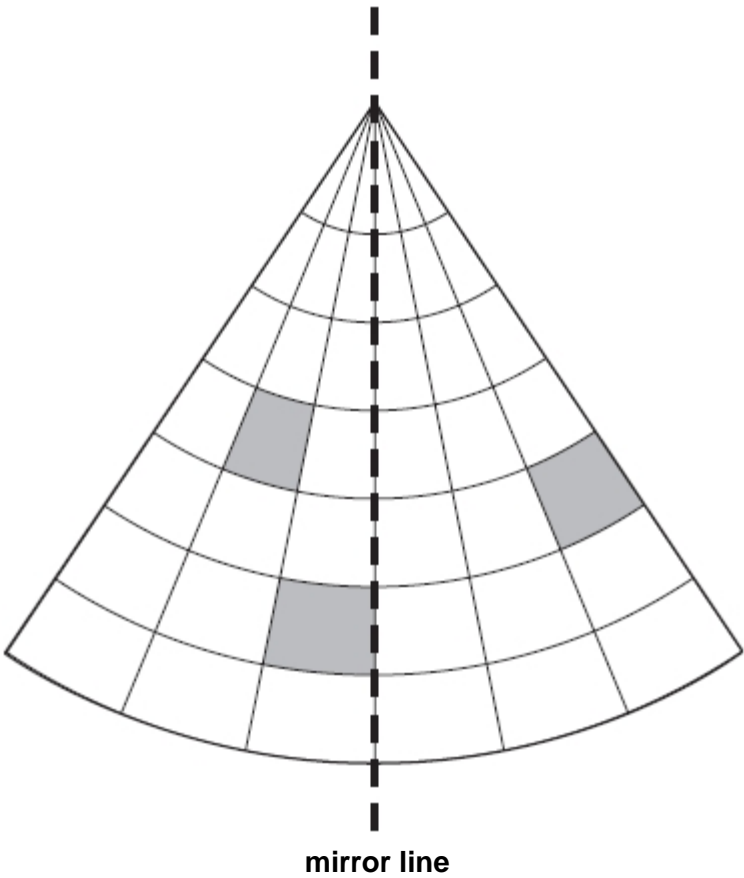
1 mark

45 Here is a shaded shape on a grid.

The shape is translated so that point **A** moves to point **B**.

Draw the shape in its new position.

Use a ruler.
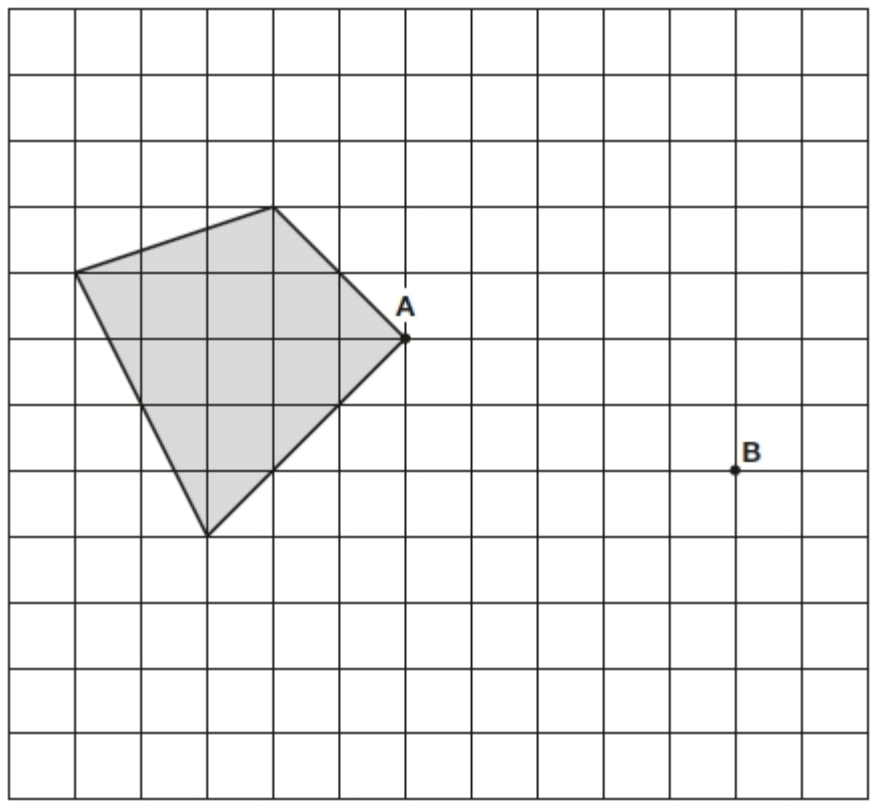
2 marks

A design is made using three circles on a 1 centimetre grid.
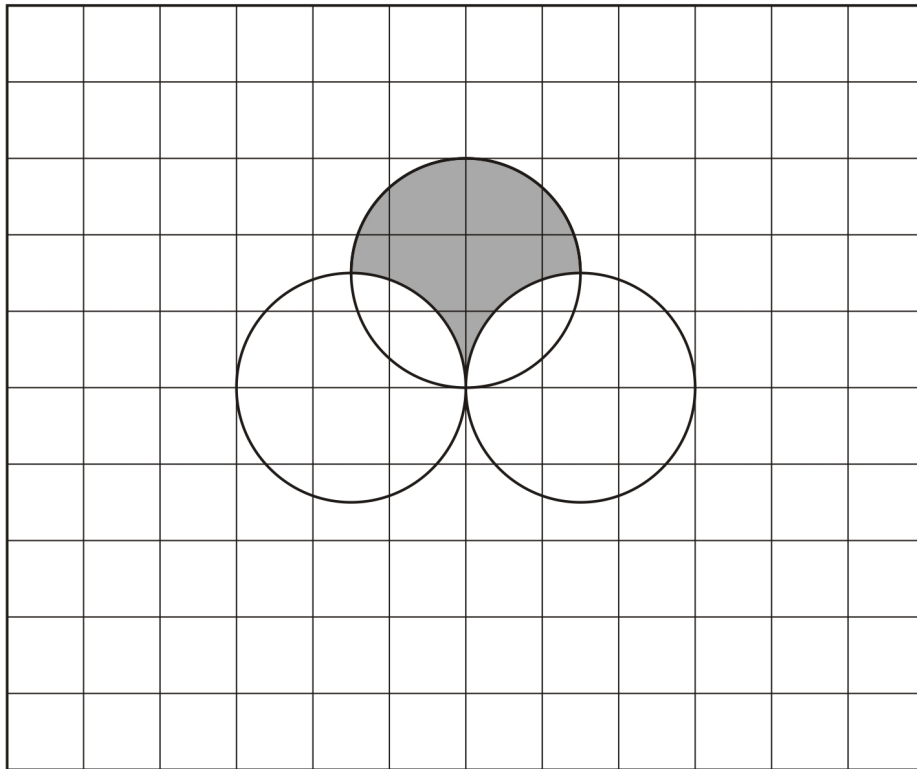
Find the **perimeter** of the shaded part of the design, correct to 1 decimal place.

Show your method

Top circle arc (½ circle) = 180° arc of radius 1 = π

Left circle arc (¼ circle) = π/2

Right circle arc (¼ circle) = π/2

Perimeter = π + π/2 + π/2 = 2π = 6.283...

Perimeter ≈ 6.3 cm

2 marks

On this grid, draw the **shaded part** of the design **enlarged** by a scale factor of **2**.

You MUST use a pair of compasses.
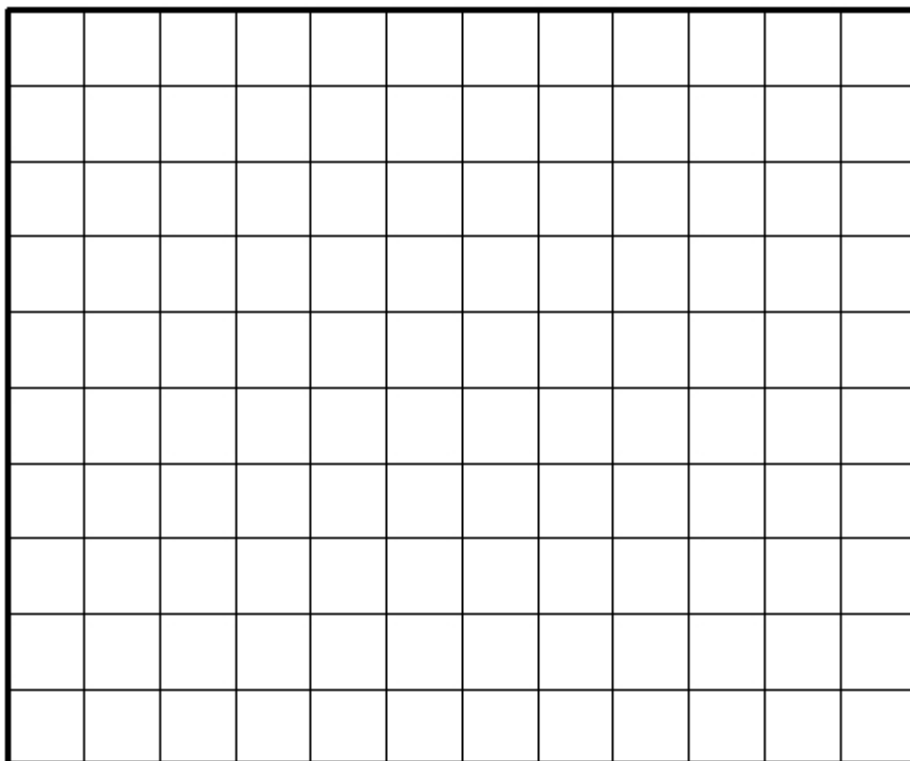
2 marks

Mark schemes

1 Correct position **AND** shape on grid.'
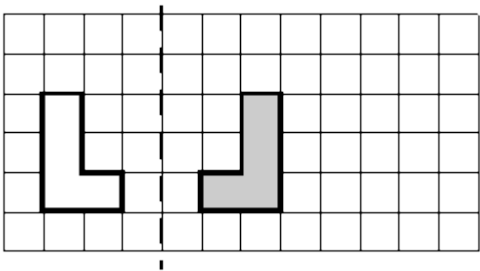
Shading is not required.

[1]

2 Award **TWO** marks if **all 3** vertices are in the correct positions.

Award **ONE** mark if **only** 2 vertices are in the correct positions.

> ***No mark*** *is awarded if **2 or more** vertices are **incorrectly** positioned.*

Up to 2

[2]

3 Award **TWO** marks for all the 6 corner points in the correct places.

Award **ONE** mark if only 5 corner points are in the correct places.

> *No marks awarded for **4 or fewer** correct corners. The corners marked by arrows need not be exactly half way between the two horizontally adjacent dots, but must **not** be on these dots:*
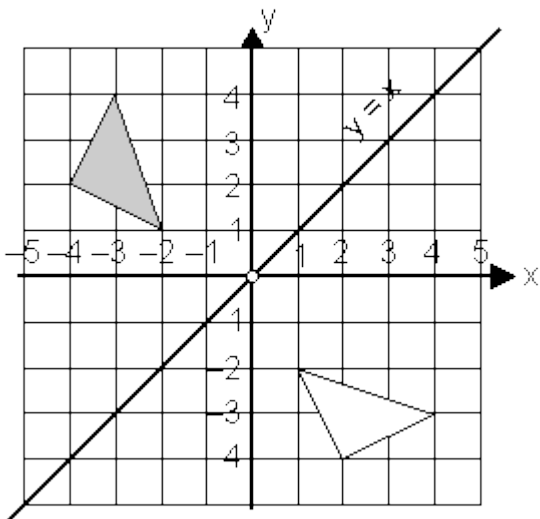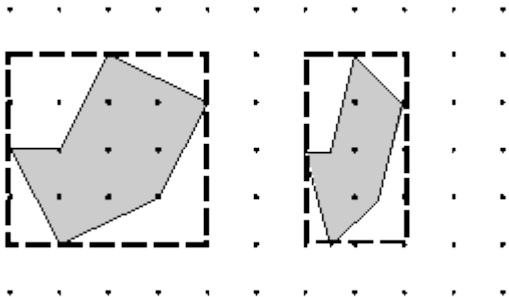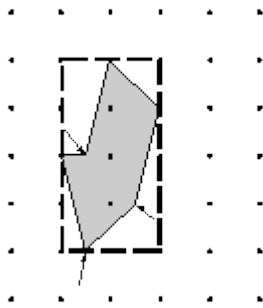
4 Award **TWO** marks for the correct drawing as below:

> *Accept inaccurate but recognisable triangles and semi-circles.*

If the drawing is incorrect, award **ONE** mark for the correct location of **BOTH** shapes (triangle on left of semi-circle), ie

OR award **ONE** mark for the correct **orientation** of **BOTH** shapes, ie

> *No marks are awarded for drawings of only **ONE** shape.*

5 Award **TWO** marks for the correct drawing as shown below.

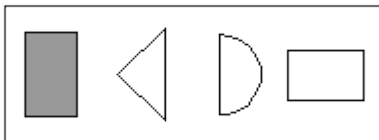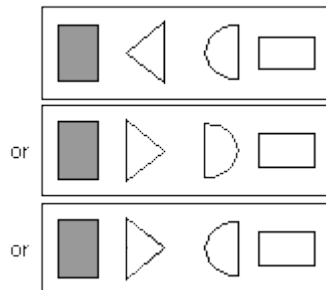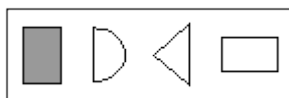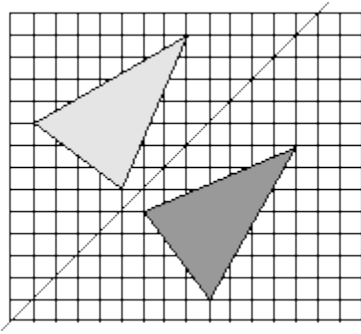If the triangle is drawn incorrectly, award **ONE** mark for **TWO** vertices of the reflection correctly located on the grid.

If all of the vertices are drawn correctly but the triangle is not drawn or is incomplete, award **ONE** mark.

> *Accept drawing errors of up to 1mm from a correct vertex.*
>
> *Triangle need not be shaded.*

Up to 2

[2]

6 Drawing as shown below

> *The 3 correct dots that form the vertices must be joined by straight lines.*
>
> *Accept small inaccuracies in drawing, provided the intention to join the correct dots is clear.*
>
> ***Do not*** *penalise drawings done without a ruler provided the intention is clear.*

[1]

7

minor line

[1]

8

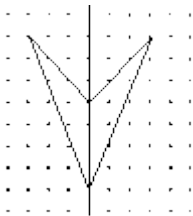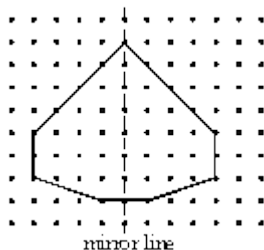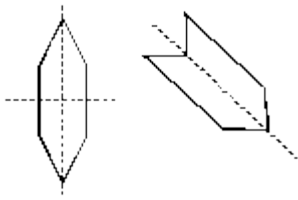*All lines to be correct. If any incorrect lines are drawn then no mark is awarded.*

[1]

9
up 3
left 2
up 2

All correct for 1 mark.

[1]

10

[1]

11 Drawing completed as shown.

Lines must be drawn to within 2mm of the correct dots.

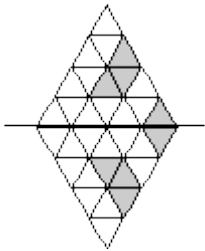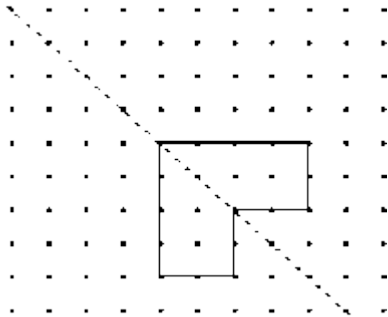***Do not*** *penalise drawings done without a ruler, provided the intention is clear.*

[1]

12 3

Accept other unambiguous indications such as a circling of hole number 3

[1]

13 (4, 3)

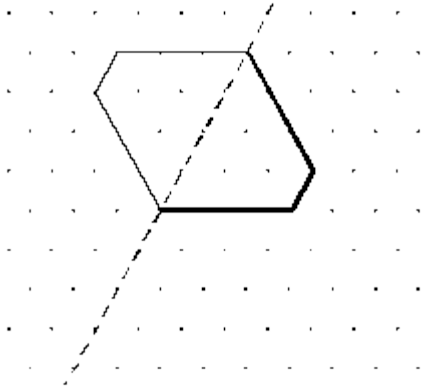*Coordinates must be written in the correct order.*

Accept (6, 3), (4, −1) or (6 −1)

Accept answers written on the diagram, with or without brackets and commas.

[1]

14 Diagram completed as shown:

Vertices must be within 2mm of correct points.

***Do not** penalise lines drawn without a ruler, provided the intention is clear.*

[1]

15 (a)   (11,9)
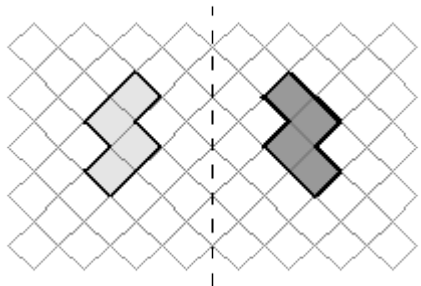
1

(b)   (15,3)

Accept answers written on the diagram with or without brackets and commas. Co-ordinates must be in the correct order.

1

[2]

16 Diagram completed as shown:

Shape need not be shaded.

Accept slight inaccuracies in drawing provided the intention is clear.
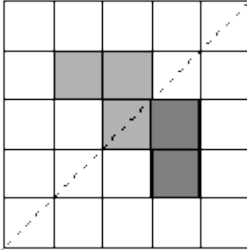
[1]

17 C

*Accept alternative, unambiguous
indications of the answer such as a cross
on shape C or a line from C to the hole.*
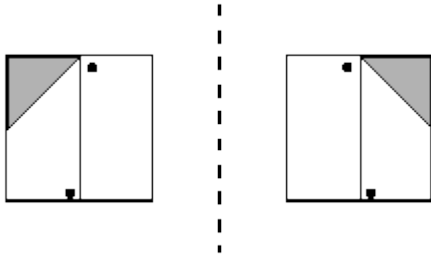
[1]

18 Squares shaded as shown:

*Accept alternative unambiguous indications, eg squares
crossed.*

*Accept slight inaccuracies in the shading, provided the intention
is clear.*

[1]

19 Diagram completed as shown:

Accept slight inaccuracies in drawing provided the intention is clear.
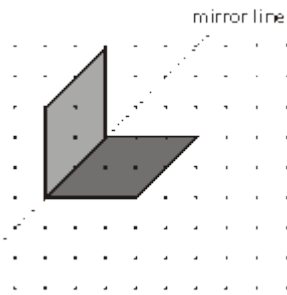
Accept answers without shading.

[1]

20 F1

Do not *accept 1F.*

[1]

21 Diagram completed as shown:

Accept slight inaccuracies in drawing, provided the intention is clear.
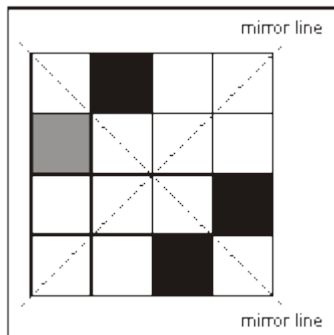
Vertices must be within 2 mm of the correct grid points.

The reflection need not be shaded.

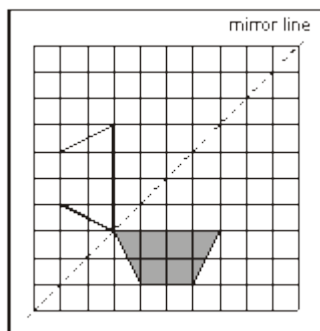[1]

22 Diagram completed as shown:

Accept alternative, unambiguous indications such as ticks or crosses, provided the intention is clear.

[1]

23 Diagram completed as shown:

Accept slight inaccuracies in drawing, provided the intention is clear.

Vertices must be within 2mm of the correct grid points.

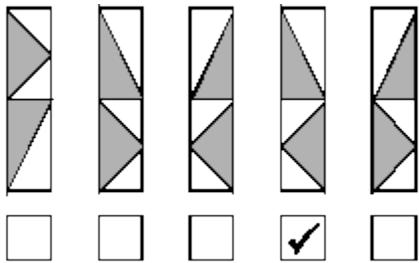*The reflection need not be shaded.*

[1]

24 B

Accept any other clear indication, such as the correct reflection ticked or circled.
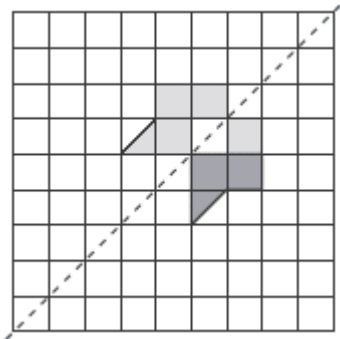
[1]

25 The correct shape ticked, as follows:

Accept alternative indications, eg shapes ringed, as long as the intention is clear.

[1]

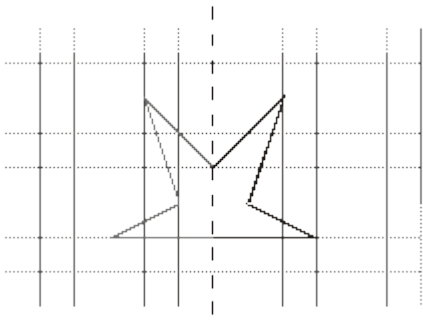**26** Diagram completed as shown:

mirror line

Accept inaccurate drawing provided the intention is clear.

[1]

27 Diagram completed correctly as shown:

Accept slight inaccuracies in drawing, provided the intention is clear.

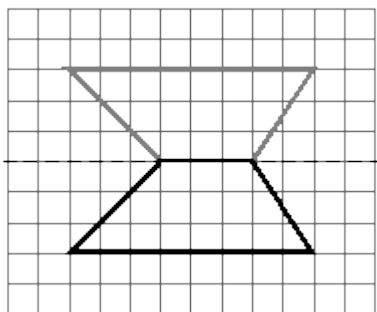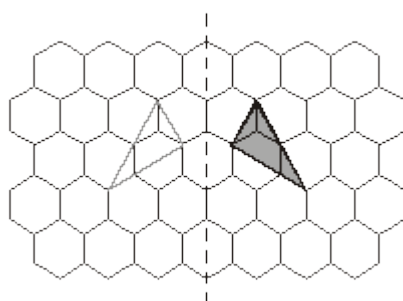**[1]**

28 Diagram completed as shown:

> *Accept slight inaccuracies in drawing provided the intention is clear.*

[1]

29 Diagram completed as shown:
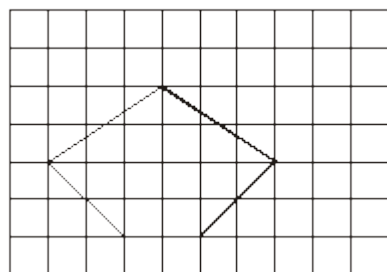

> *Accept slight inaccuracies in drawing.*

[1]

30 Two more lines drawn as shown:

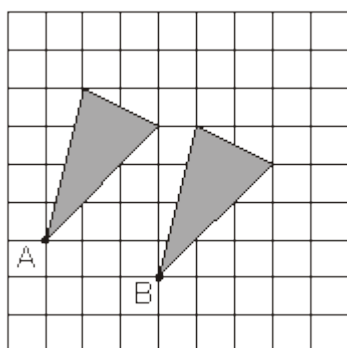> *Accept slight inaccuracies in drawing.*
> ***Do not** accept lines drawn outside of the grid.*
> *Ignore line of symmetry if drawn.*

[1]

31 Diagram completed as shown:

*Accept slight inaccuracies in drawing
(see page 3 for guidance).*

[1]

32 Diagram completed as shown:

mirror line
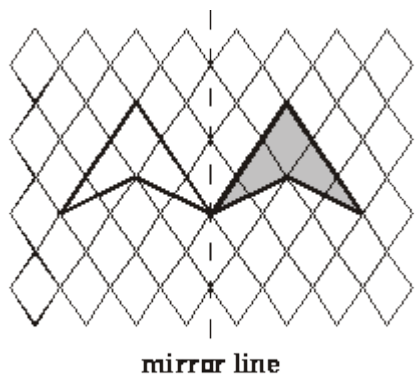
*Accept: slight inaccuracies in drawing (see General guidance:
applying the mark scheme for guidance).*

Shape need not be shaded.

[1]

33 Diagram completed correctly as shown:

OR

Accept alternative unambiguous indications, eg squares shaded, ticked or crossed.

[1]

34 Diagram completed as shown:

mirror line

Accept slight inaccuracies in drawing.
Shape need not be shaded.

[1]

35 D B A C

Accept C A B D.
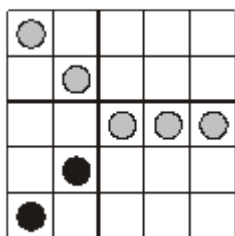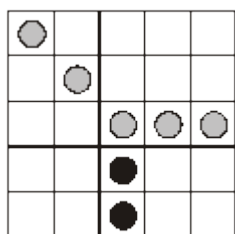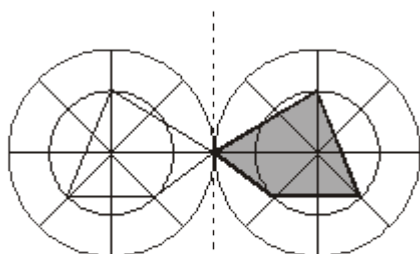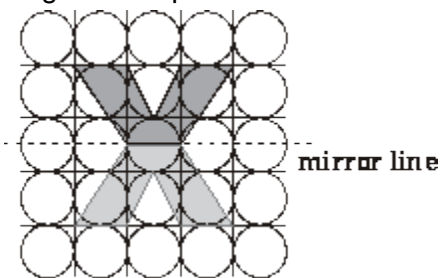
U1
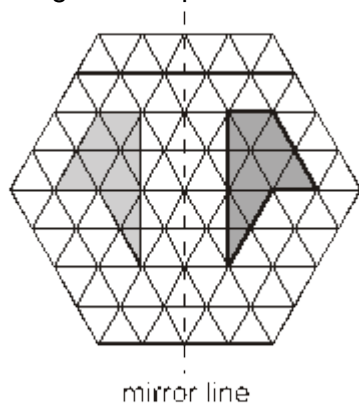
[1]

36 Diagram completed as shown:

Accept slight inaccuracies in drawing.
Shape need not be shaded.
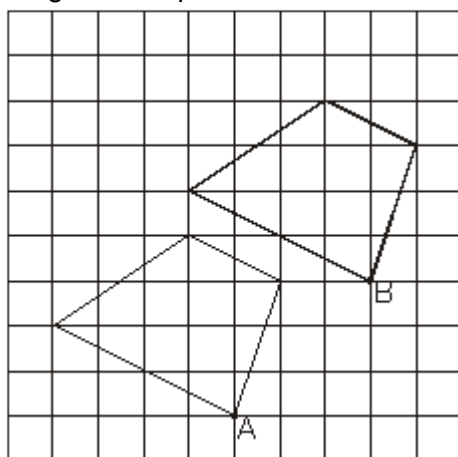
[1]

37 Diagram completed as shown:

Accept slight inaccuracies in drawing
Shape need not be shaded.
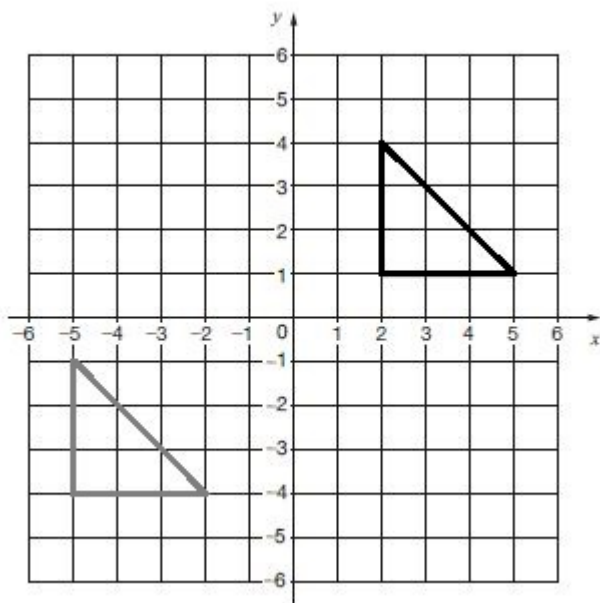
[1]

38 Diagram completed as shown:

Accept slight inaccuracies in drawing

[1]

39

Triangle with vertices at (2,1) **AND** (2,4) **AND** (5,1) drawn on the grid as shown:

Accept slight inaccuracies in drawing

[1]

40
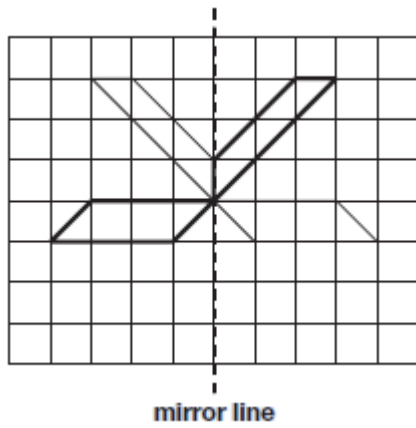
B **AND** C **AND** G

Letters may be given in any order.

U1

[1]

41

The triangle has moved ⬚6⬚ squares to the right

and ⬚5⬚ squares down.

[1]

42 Diagram completed as shown:

mirror line

Accept slight inaccuracies in drawing.

[1]

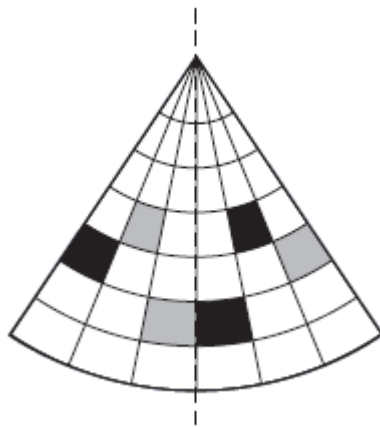**43** Diagram completed as shown:

mirror line
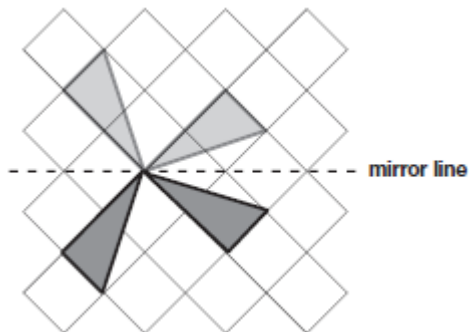
Accept slight inaccuracies in drawing.
Diagram need not be shaded.

[1]
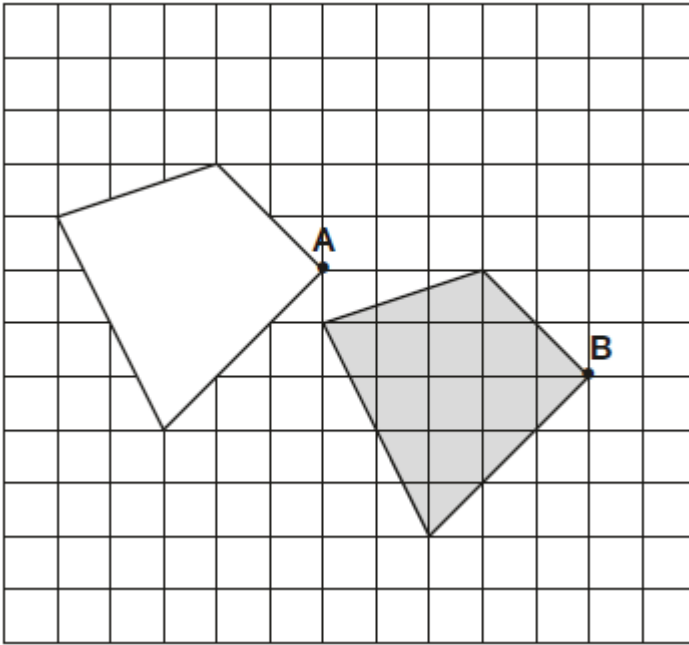
44 Diagram completed as shown:

Accept inaccurate shading, provided the intention is clear.
Accept alternative unambiguous indications.

[1]

45 Award **TWO** marks for three vertices of the shape, excluding B, translated correctly as shown below:

If the answer is incorrect, award **ONE** mark for two vertices, excluding B, translated correctly.

Accept slight inaccuracies in drawing provided intention is clear.

Up to 2

[2]

46 (a) Award **TWO** marks for the correct answer of 9.4 cm.

If answer is incorrect, award **ONE** mark for evidence of an appropriate method, eg:
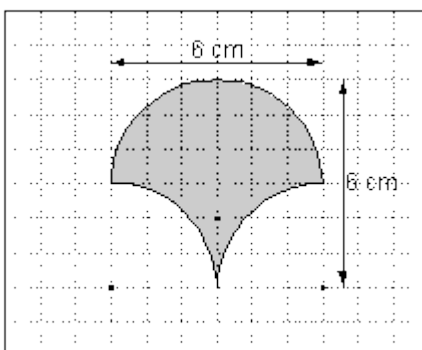
- 2 × π × 1.5 OR 3 × π

   Units may be omitted.

   *Award **ONE** mark for unrounded answer, eg*

   - *9.42*

Up to 2

(b) Award **TWO** marks for drawing as below, anywhere on grid, to accuracy of ± 1mm at any point.

Centre of arcs may not be apparent.

If drawing is inaccurate but shows evidence of the correct location of the centres of ALL three arcs in relation to each other, award **ONE** mark.

> *Shading is unnecessary.*
>
> *Award **TWO** marks if 3 complete circles are accurately drawn and correctly located.*

Up to 2

[4]