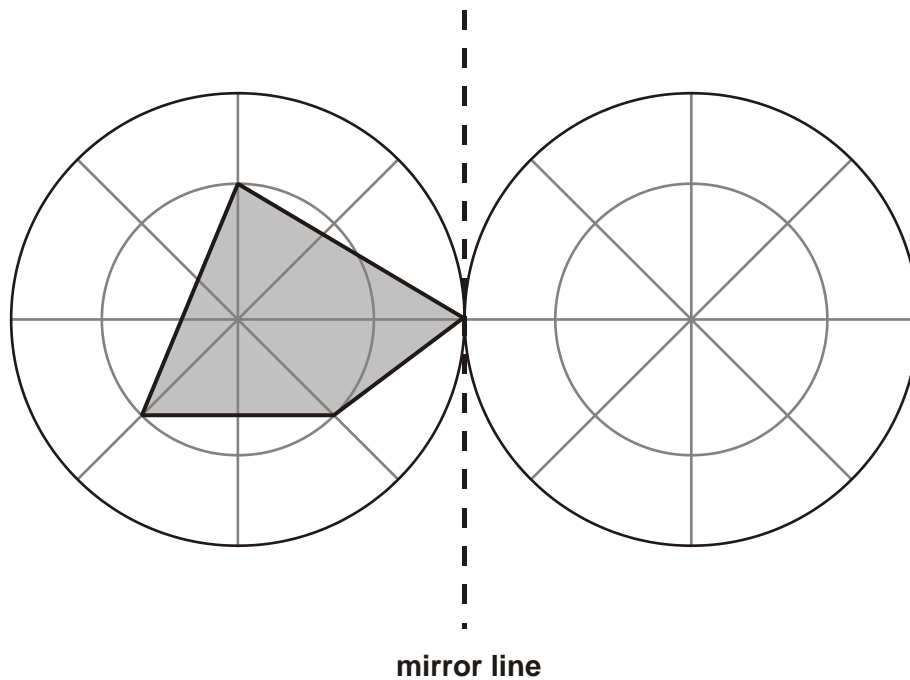


1. Draw the reflection of the shaded shape in the mirror line.

Use a ruler.




1 mark

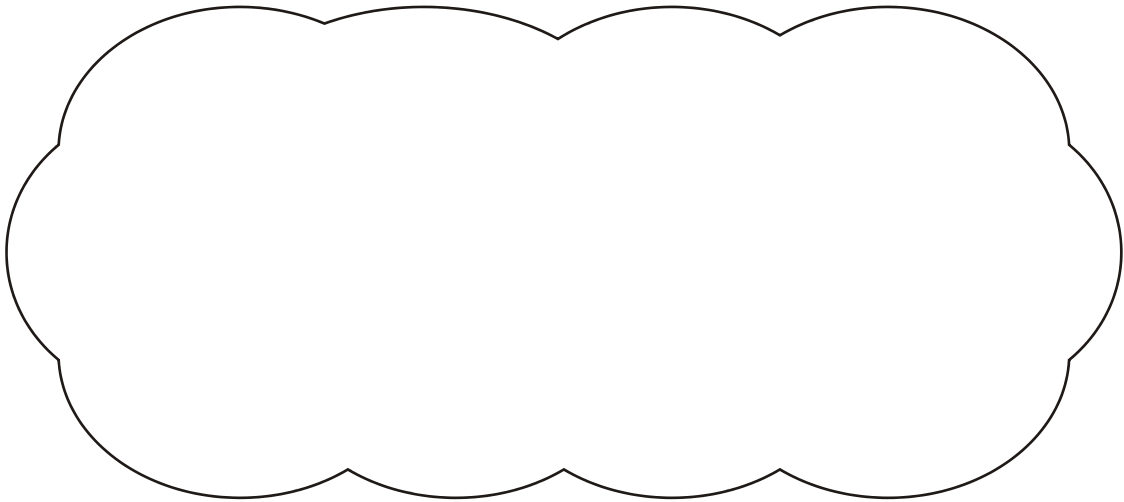
2. A square always has four sides.

Is it true that a four-sided shape is **always** a square?

Circle **Yes** or **No**.

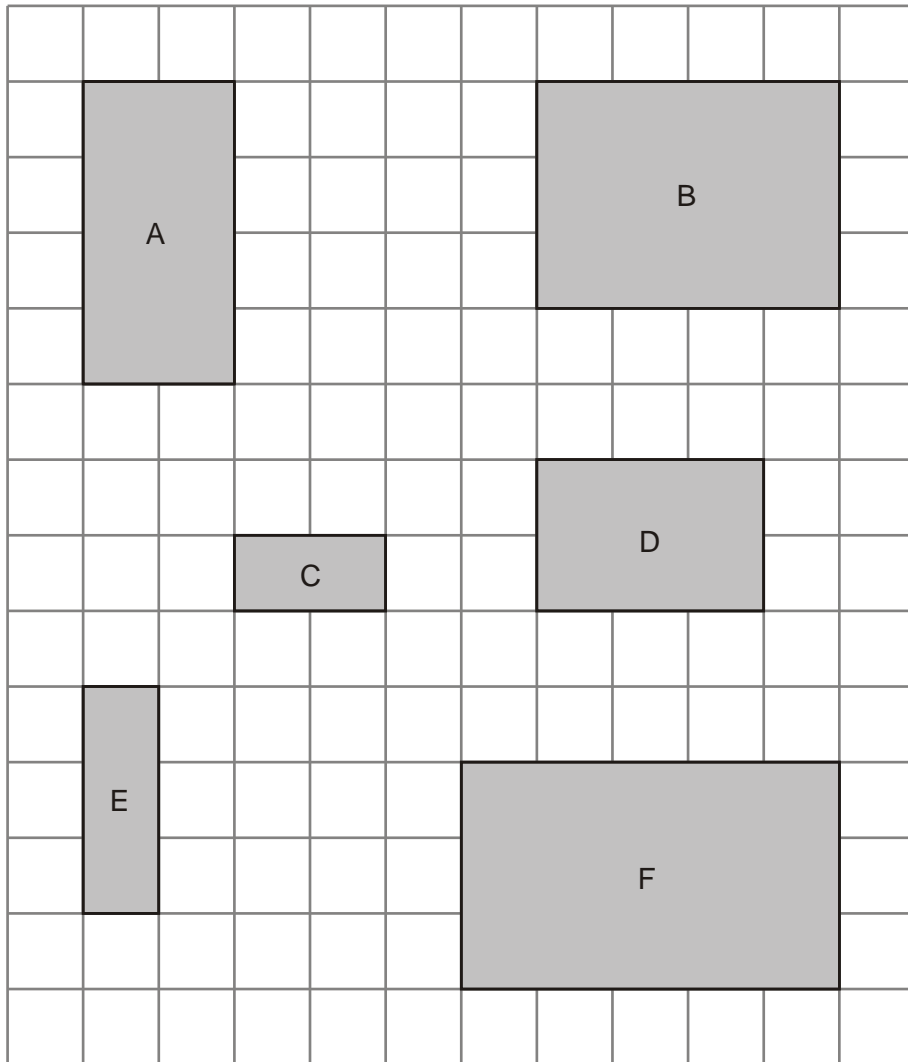
 Yes / No

Explain how you know.




1 mark

3. Here are six rectangles on a grid.



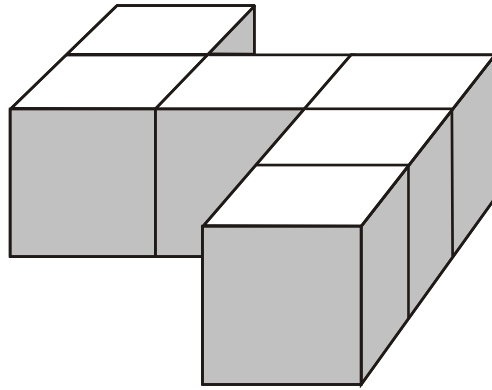
Which **two** rectangles fit together, without overlapping, to make a **square**?

 and

1 mark

4. Emily has 6 cubes.

She sticks them together to make this model.



She paints the sides of the model grey all the way round.

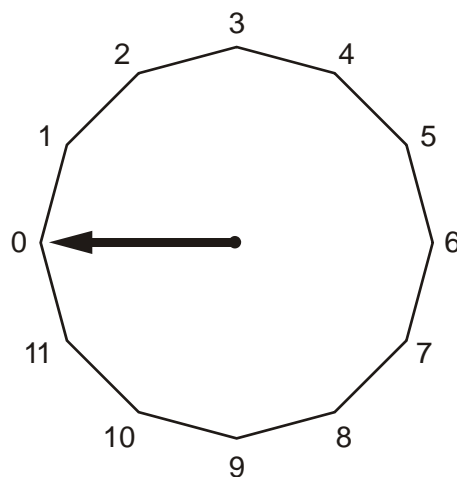
She leaves the top and the bottom of the model white.

How many of the cubes in the model have **exactly two** faces painted grey?



1 mark

5. This regular 12-sided shape has a number at each vertex.



Ben turns the pointer from zero, clockwise through 150°

Which number will the pointer now be at?



1 mark

Nisha turns the pointer clockwise from number 2 to number 11

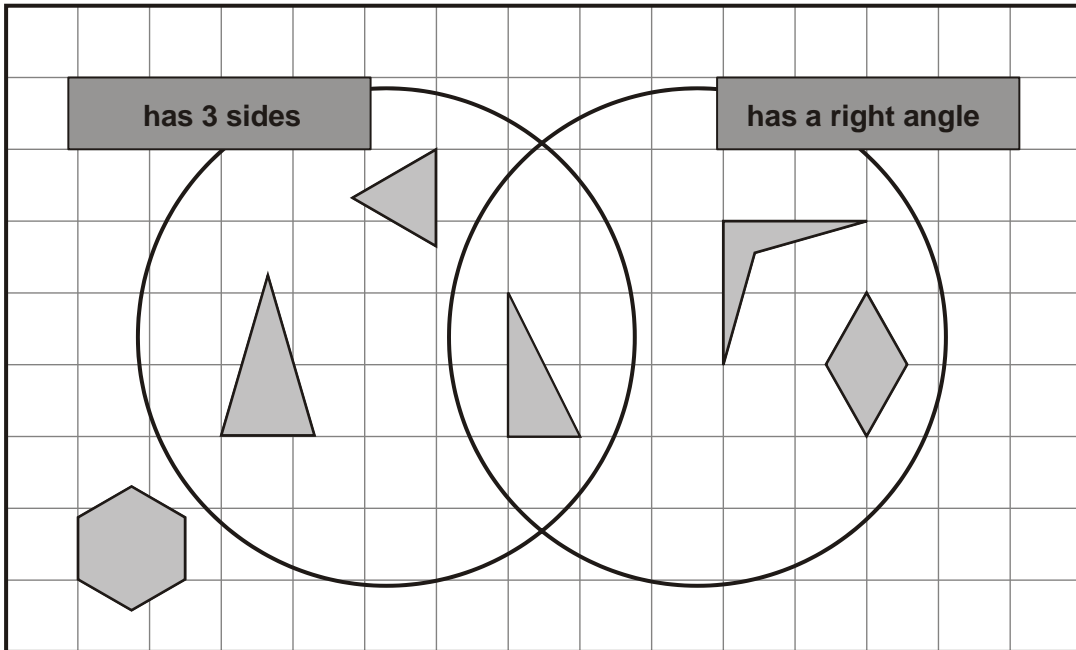
Through how many degrees does the pointer turn?



1 mark

6. Here is a diagram for sorting shapes.

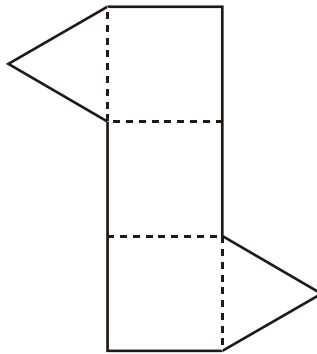
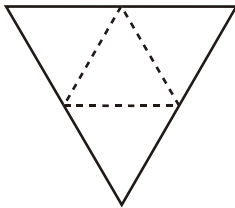
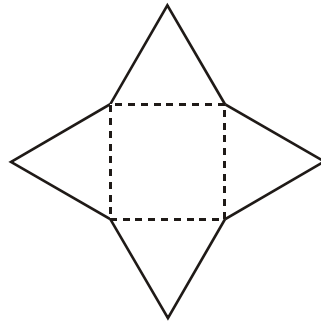
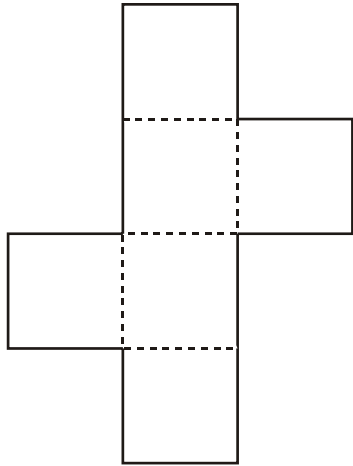
One of the shapes is in the wrong place.
Put a cross (✗) on it.



1 mark

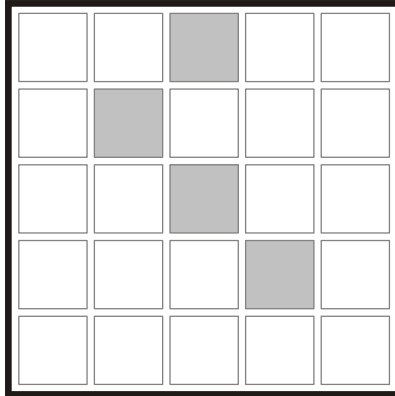
7. Here are some nets of shapes.

For each net, put a tick (✓) if it folds to make a **pyramid**.
Put a cross (✗) if it does not.



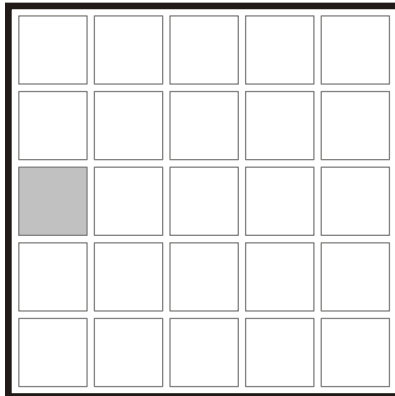
1 mark

8. Ben makes this design on a grid.



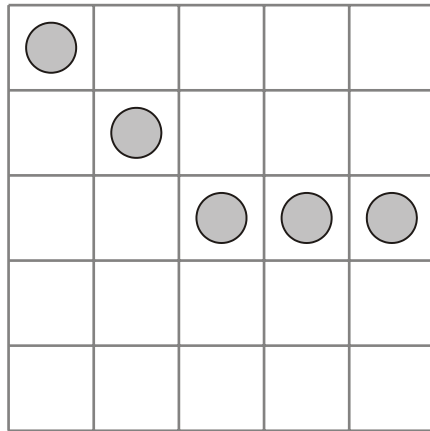
He rotates the grid to a new position.

Shade in the missing parts of the design.



1 mark

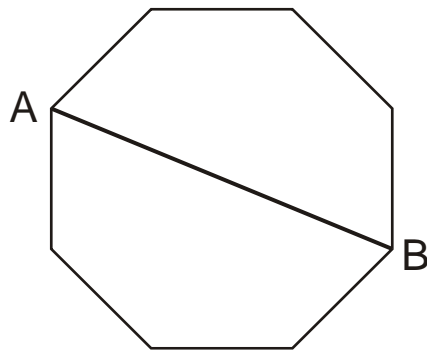
9. Draw **two** more circles on this grid to make a design that has a line of symmetry.



1 mark

10. Here is a regular octagon with two vertices joined to make the line AB.

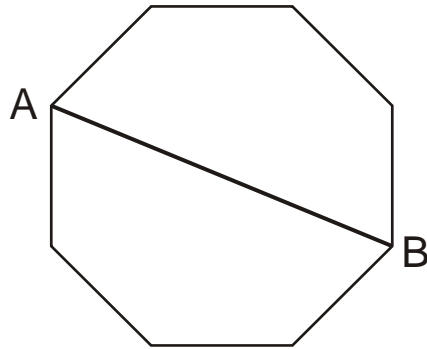
Join two other vertices to draw **one** line that is **parallel** to the line AB.



1 mark

Here is the octagon again.

Join two vertices to draw **one** line that is **perpendicular** to the line AB.



1 mark

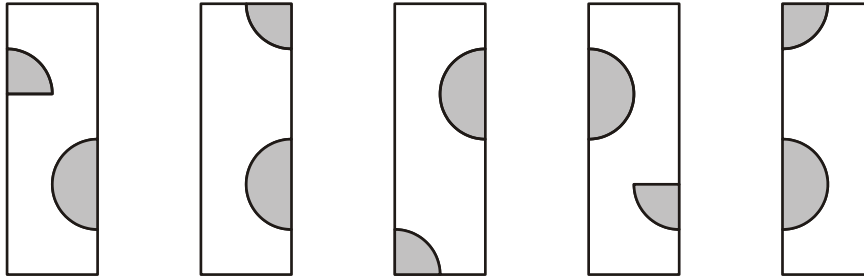
11. Here is a tile.



The tile is turned.

One of the diagrams below shows the tile after it has been turned.

Tick (✓) the correct diagram.

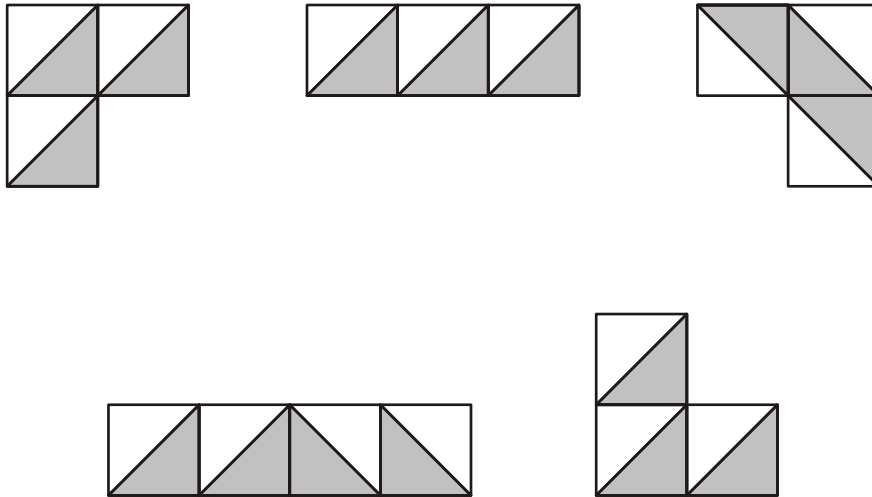


1 mark

12. Here are five patterns.

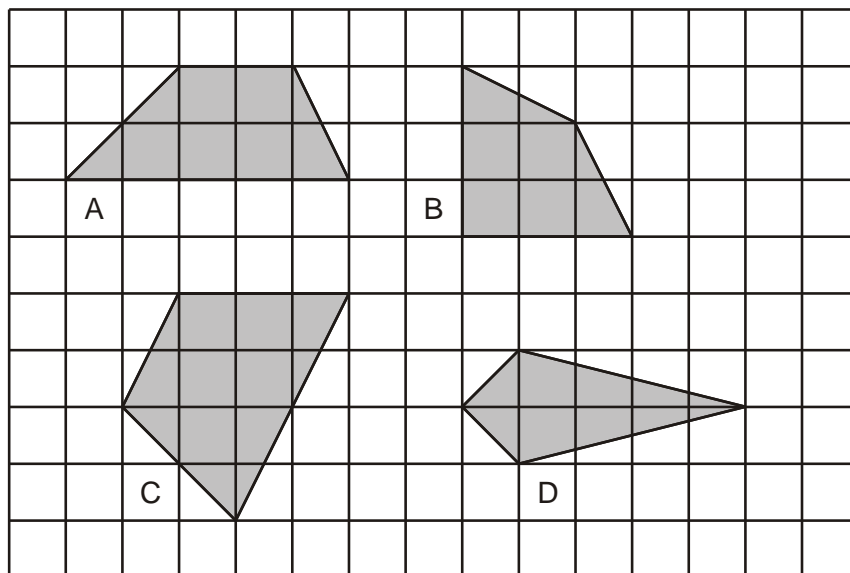
For each pattern put a tick (✓) if it has a line of symmetry.

Put a cross (✗) if it does not.



2 marks

13. Here are some shapes on a grid.



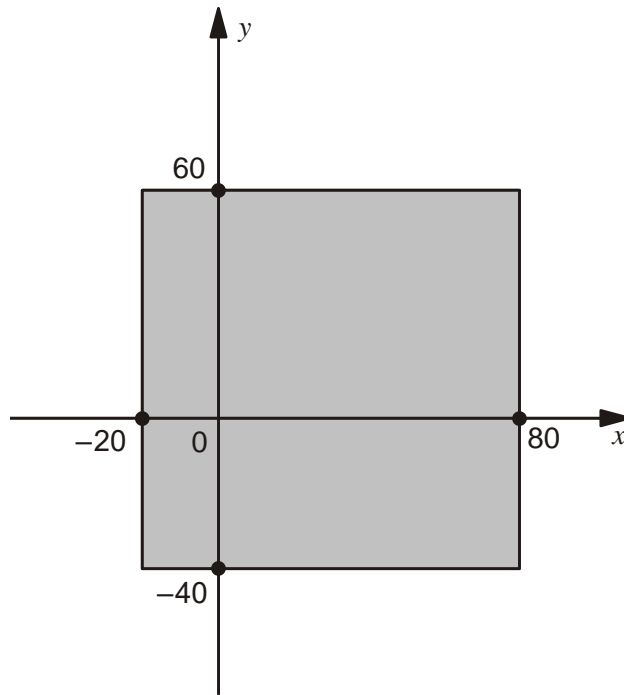
Write the letter of each shape that has one pair of parallel sides.



.....

1 mark

14. Here is a shaded square on x and y axes.



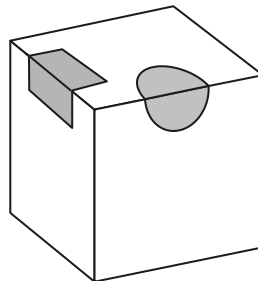
For each of these points, put a tick (✓) to show if it is inside the square or outside the square.



	inside the square	outside the square
(50, 70)	<input type="checkbox"/>	<input type="checkbox"/>
(60, -30)	<input type="checkbox"/>	<input type="checkbox"/>
(-10, 50)	<input type="checkbox"/>	<input type="checkbox"/>
(-30, -30)	<input type="checkbox"/>	<input type="checkbox"/>

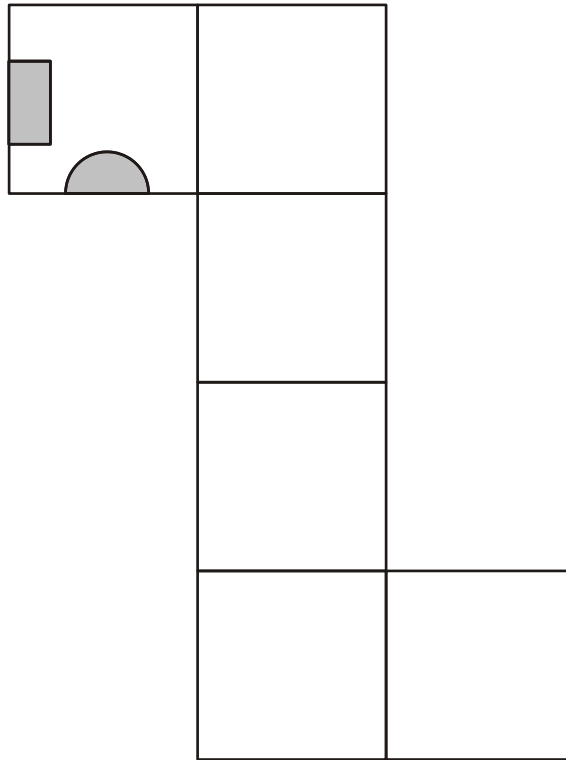
2 marks

15. A cube has shaded shapes on three of its faces.



Here is a net of the cube.

Draw in the two missing shaded shapes.



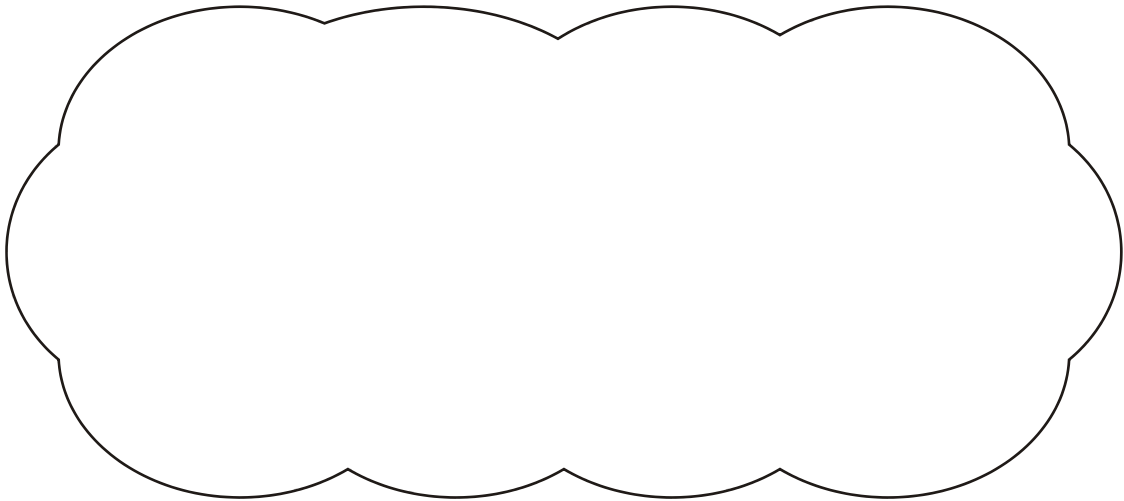
1 mark

16. Jamie draws a triangle.

He says,

'Two of the three angles in my triangle are obtuse'.

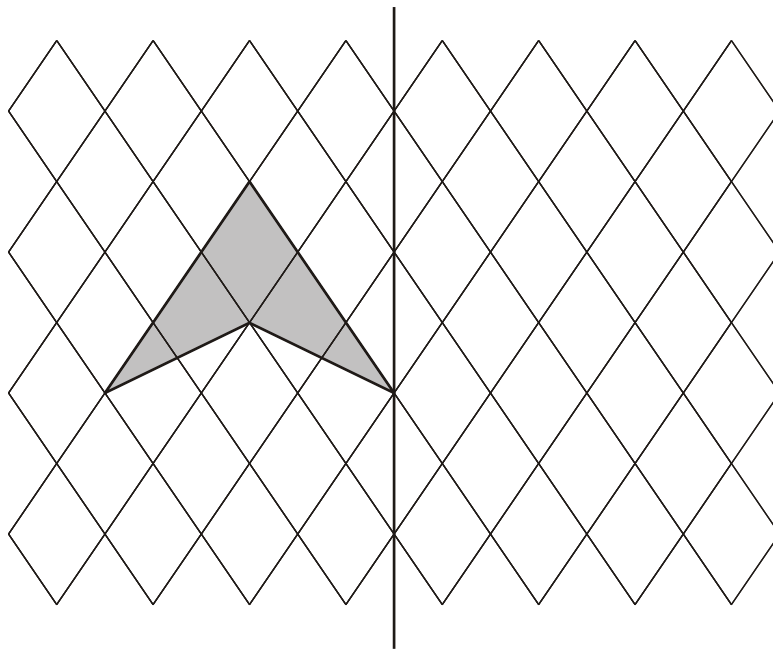
Explain why Jamie **cannot** be correct.



1 mark

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

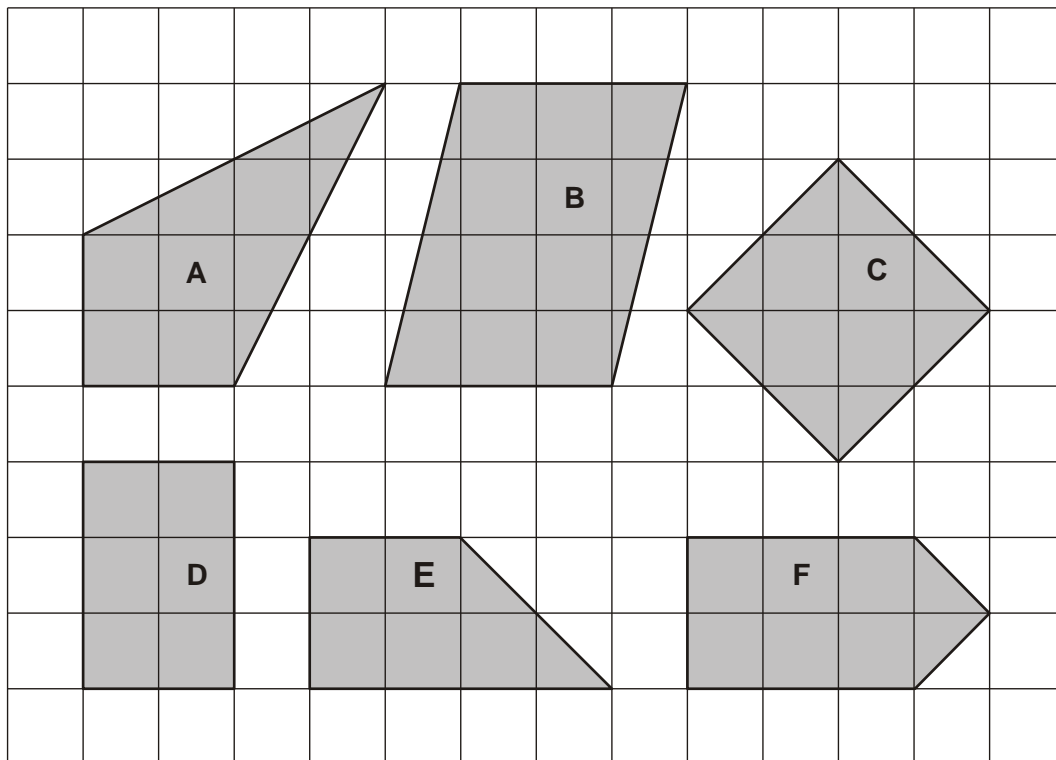
Use a ruler.



mirror line

1 mark

18. Look at these shapes.



Complete the sentences below.

One has been done for you.

..... **A** is a kite



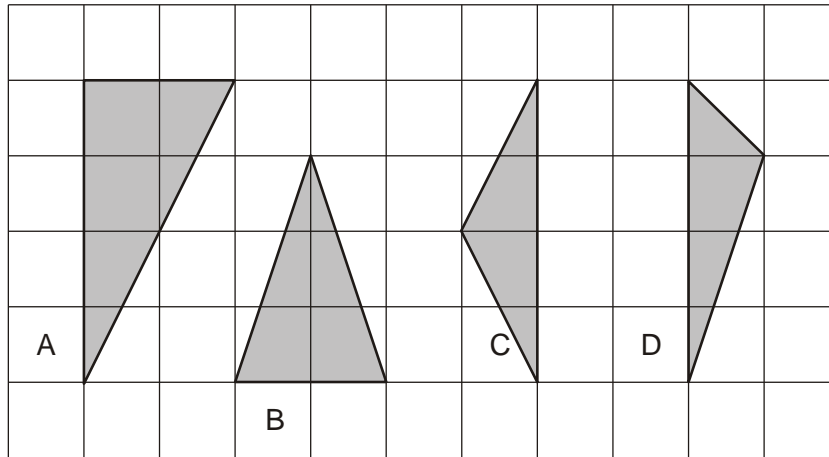
..... is not a quadrilateral

..... has only 2 right angles


..... has 2 acute angles

2 marks

19. Here are four triangles on a square grid.



Write the letters of the **two isosceles** triangles.

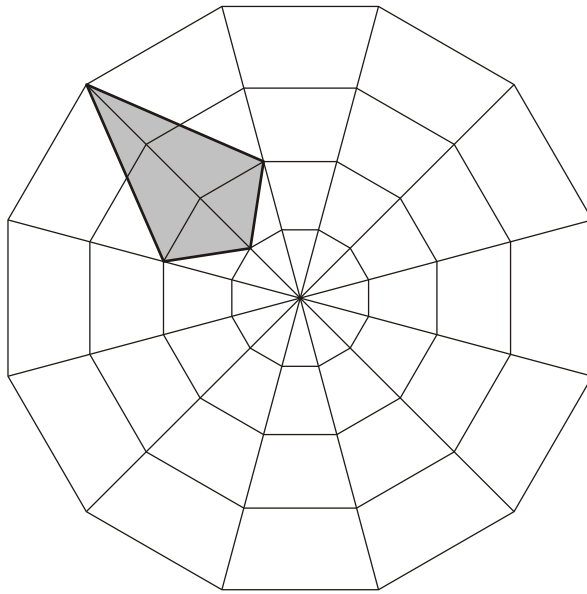
 and

1 mark

20. Here is a shaded shape on a grid.

Jamie rotates the shape 90° **clockwise** about the centre of the grid.

Draw the shaded shape in its new position.

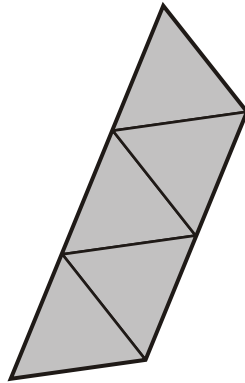
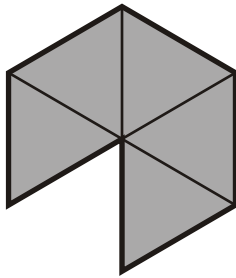


2 marks

21. These two shapes are made from equilateral triangles.

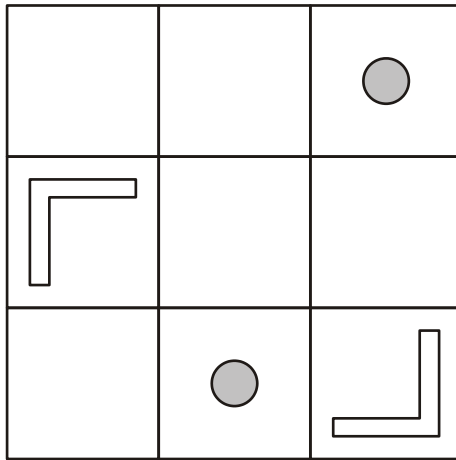
Draw one line of symmetry on each shape.

Use a ruler.



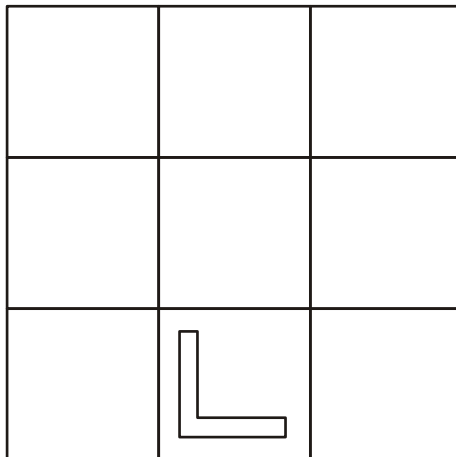
1 mark

22. There are four shapes on this diagram.



The diagram is turned to the new position below.

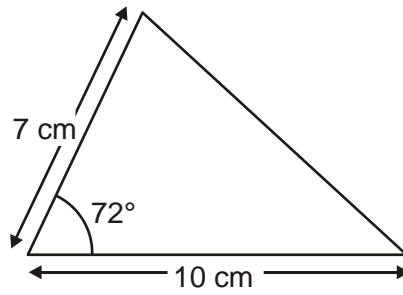
Draw the three missing shapes.



2 marks

23. Here is a sketch of a triangle.

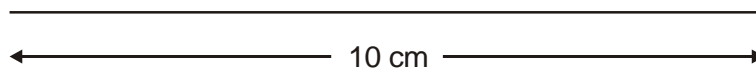
It is not drawn to scale.



Draw the full-size triangle **accurately** below.

Use a protractor (angle measurer) and a ruler.

One line has been drawn for you.



2 marks

24. Put ticks (✓) and crosses (✗) on the chart to complete it correctly.

One has been done for you.

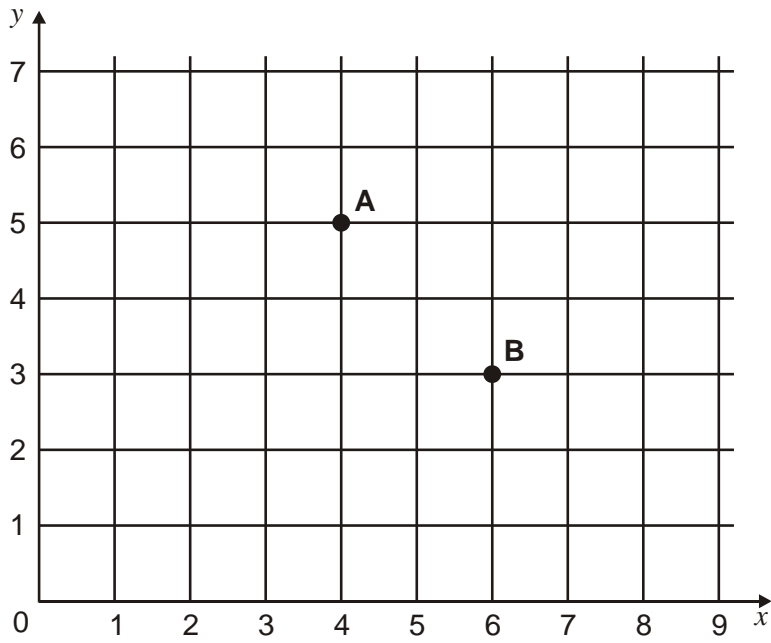


Shape	It is a quadrilateral	It has one or more right angles
	✗	✓

2 marks

25. **A**, **B**, **C** and **D** are the vertices of a rectangle.

A and **B** are shown on the grid.



D is the point (3, 4)

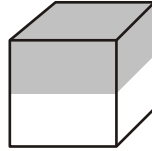
Write the coordinates of point **C**.

(,)

1 mark

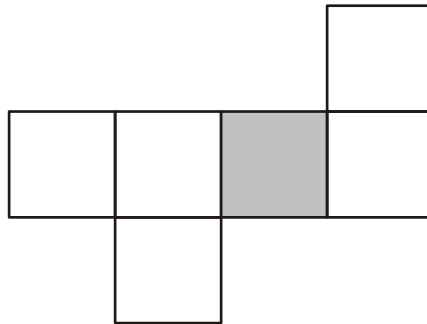
26. Here is a cube.

The cube is shaded all the way round so that the top half is grey and the bottom half is white.



Here is the net of the cube.

Complete the shading



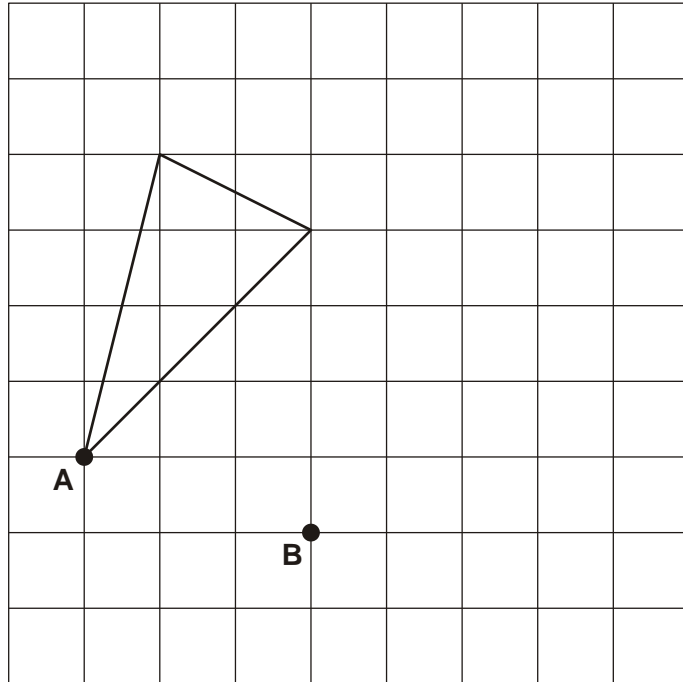
2 marks

27. Here is a triangle on a square grid.

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

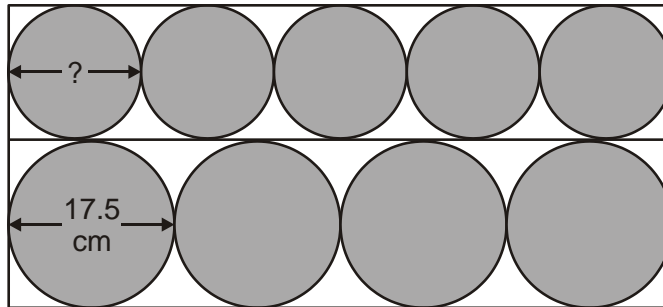
Draw the triangle in its new position.

Use a ruler.



1 mark

28. Four large circles and five small circles fit exactly inside this rectangle.



Not actual size

The **diameter** of a large circle is **17.5** centimetres.

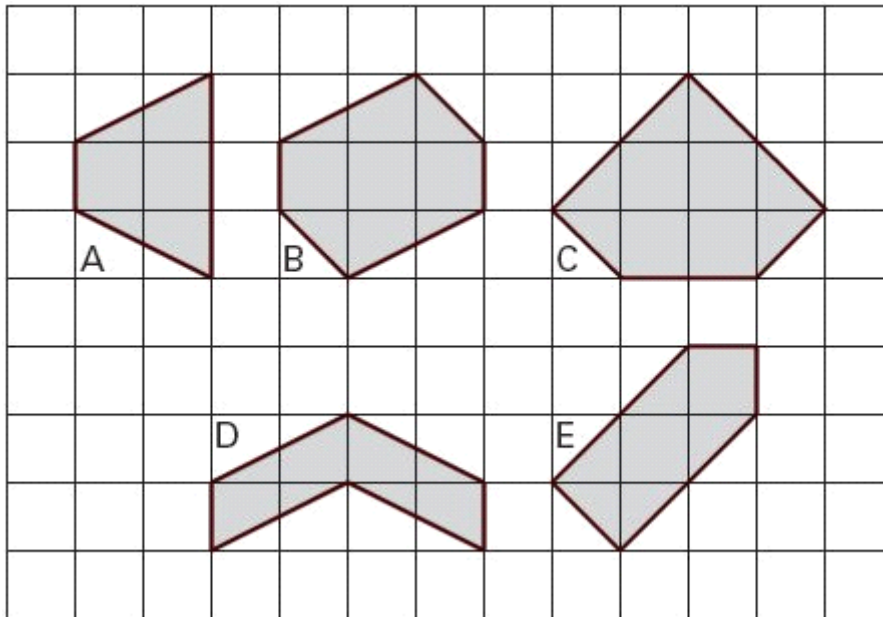
Calculate the **diameter** of a small circle.




Show your **method**.
You may get a mark.

2 marks

29. Here are some shaded shapes on a square grid.




Write the letters of the **two** shapes which are hexagons.



1 mark

Write the letters of the **two** shapes which have **right angles**.

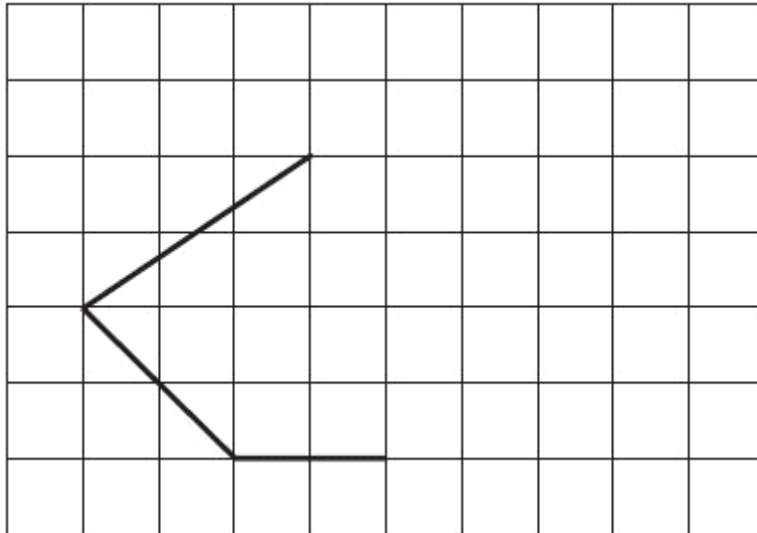


1 mark

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.

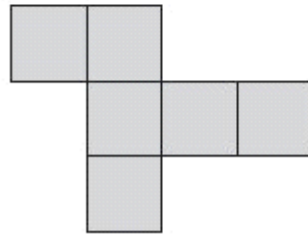
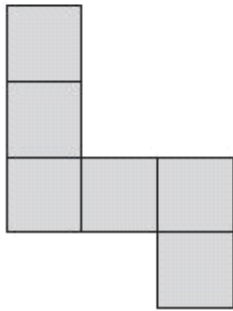
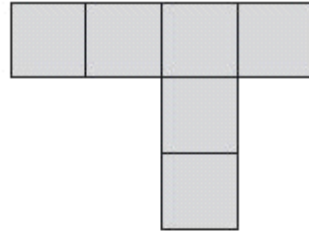
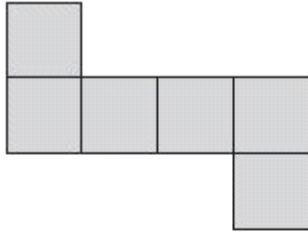
Use a ruler.



1 mark

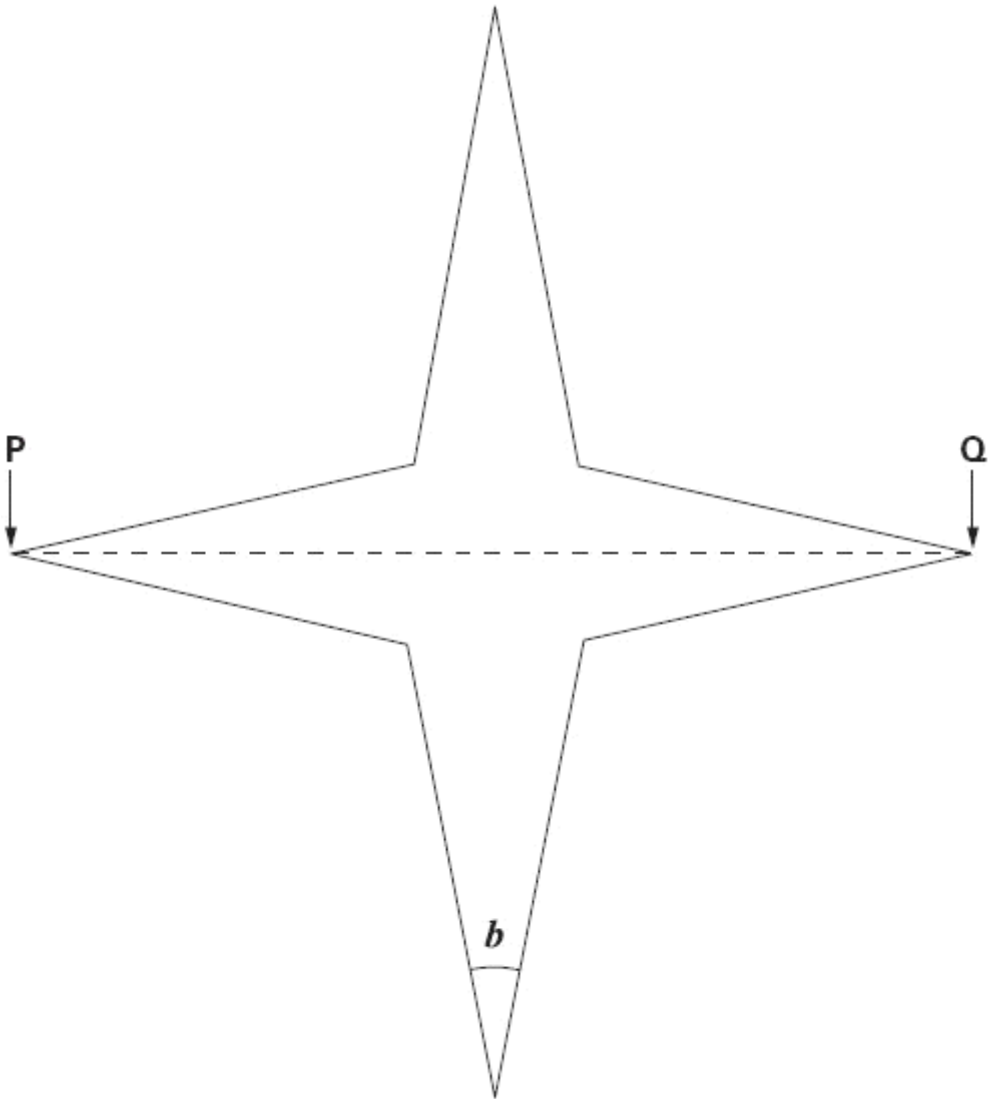
31. Here are four diagrams.

On each one put a tick (✓) if it is a net of a cube.
Put a cross (✗) if it is not.




2 marks

32. Look at this star.



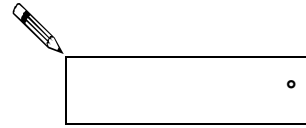
Use a ruler to measure **accurately** the **width** of the star, from **P** to **Q**.

Give your answer in **millimetres**.

 mm

1 mark

Use a protractor (angle measurer) to measure **angle b**.



1 mark

33. Here are four statements.

For each statement put a tick (✓) if it is **possible**.
Put a cross (✗) if it is **impossible**.



A triangle can have 2 acute angles.

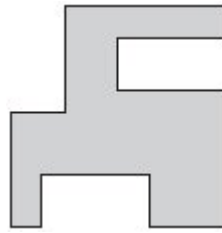
A triangle can have 2 obtuse angles.

A triangle can have 2 parallel sides.

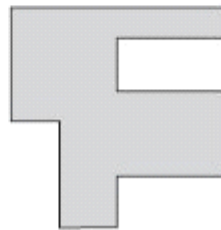
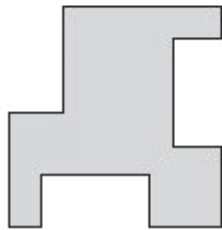
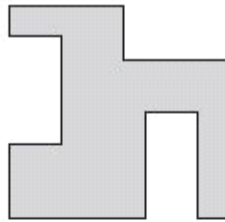
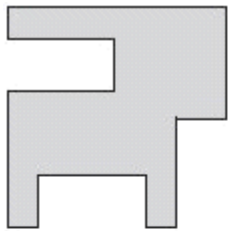
A triangle can have 2 perpendicular sides.

2 marks

34. Here is a shape.



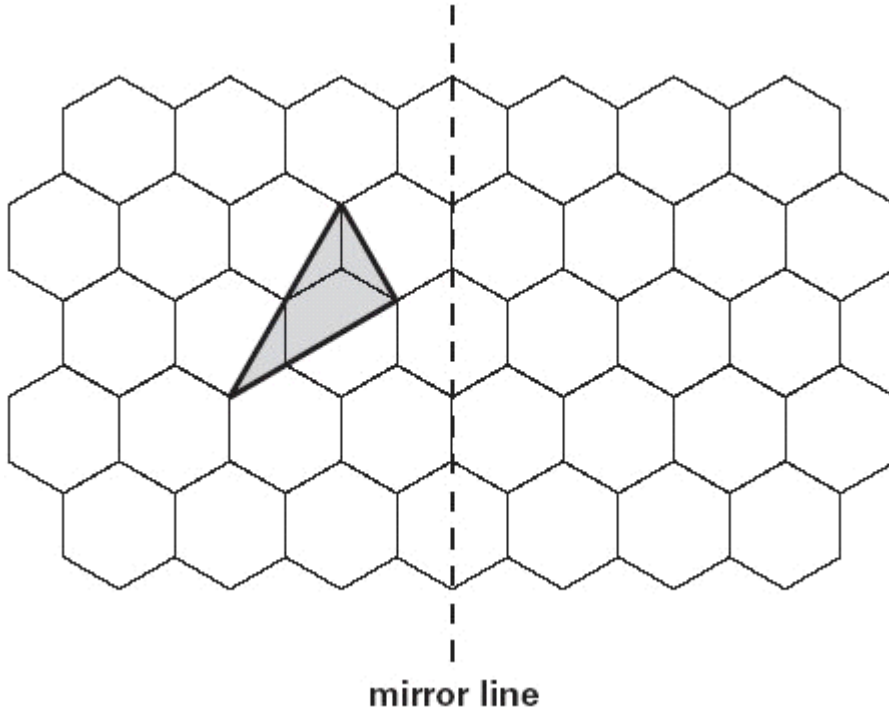
Put a tick (✓) on the shape below which is the same as the one above.



1 mark

35. This grid is made of hexagons.

Draw the reflection of the shaded shape on the grid.



1 mark

36. This table shows information about four solid shapes.

Complete the table.

One has been done for you.

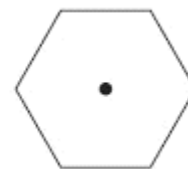
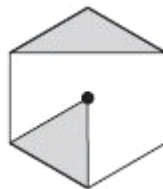


	number of flat surfaces	number of curved surfaces
sphere	0	1
cone		
cuboid		
cylinder		

2 marks

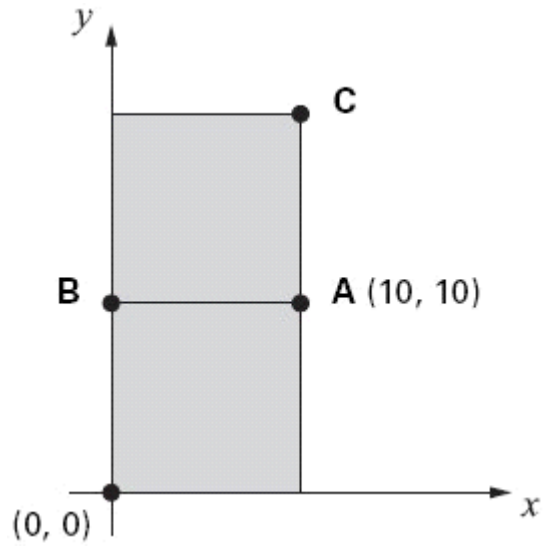
37. This pattern is made by turning a shape clockwise through 90° each time.

Draw the two missing triangles on the last shape.



1 mark

38. The diagram shows two identical squares.



A is the point (10,10)

What are the coordinates of B and C?



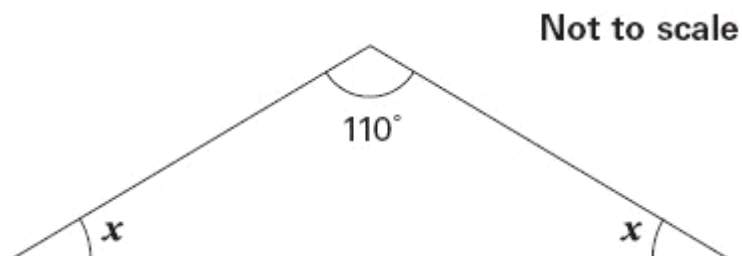
B is (,)

1 mark

C is (,)

1 mark

39. Here is an isosceles triangle.



Calculate the size of angle x .

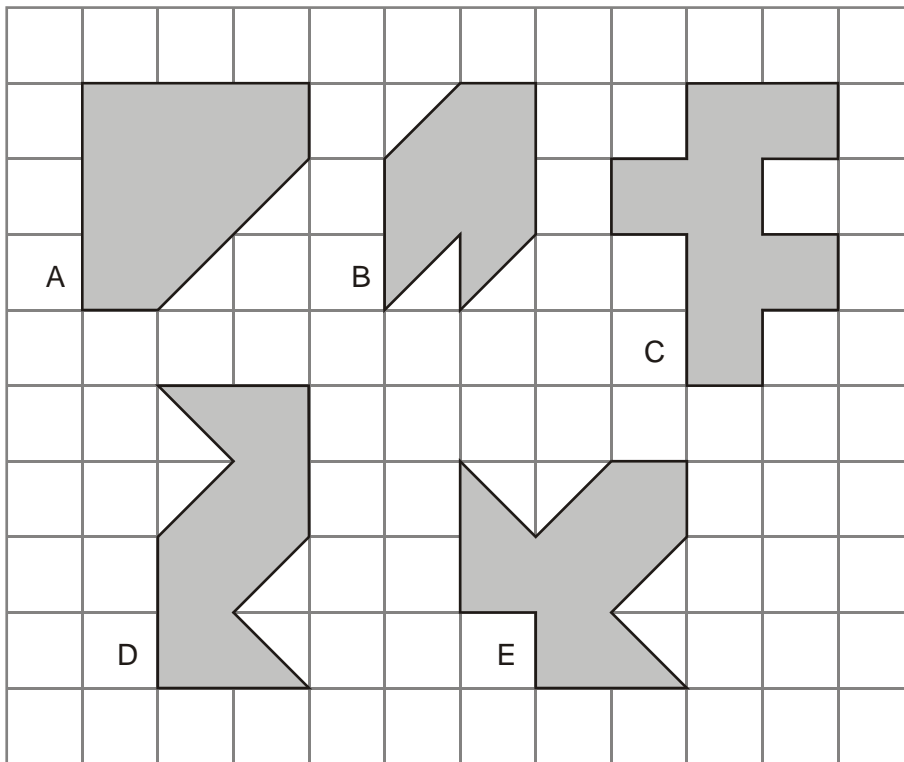
Do **not** use a protractor (angle measurer).



$x =$ °

1 mark

40. Here are five shapes on a square grid.



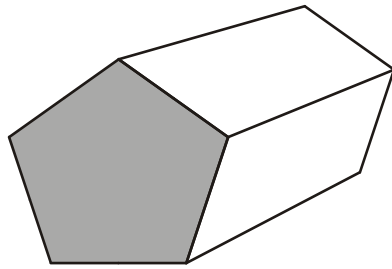
Write the letters of the **two** shapes which have a line of symmetry.



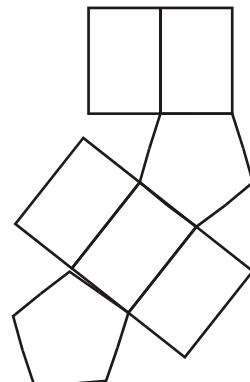
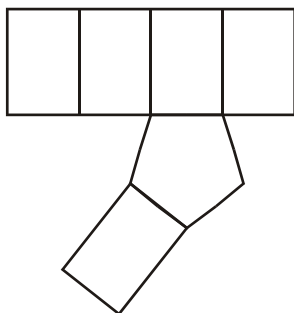
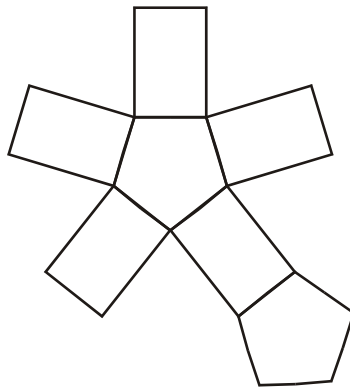
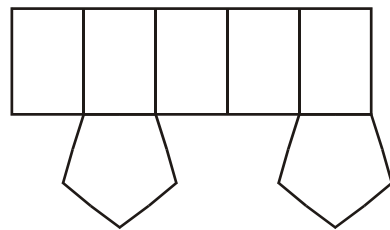
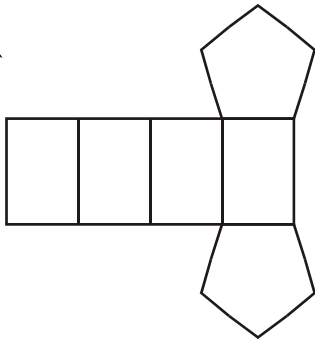
..... and

2 marks

41. This is a drawing of a pentagonal prism.

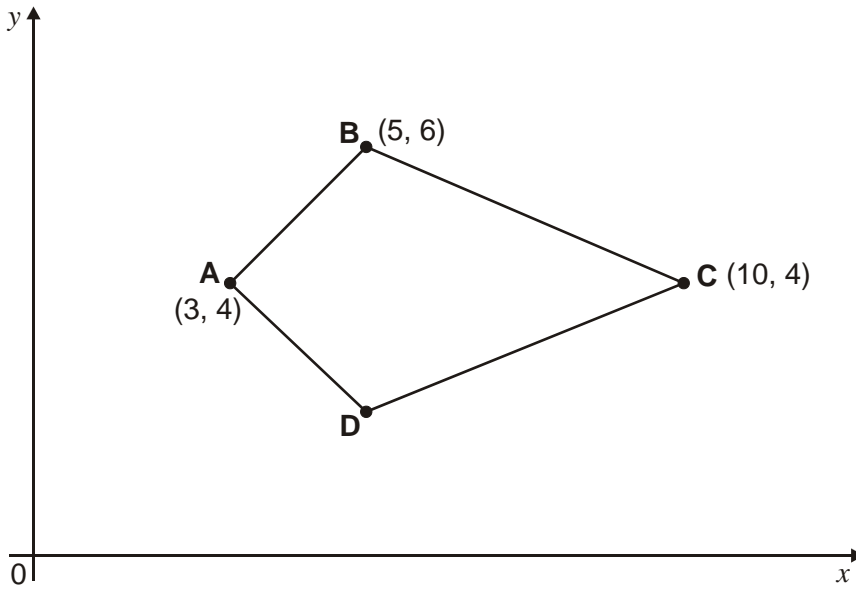


Tick (✓) the one shape that is a net for the pentagonal prism.




1 mark

42. Here is a kite.



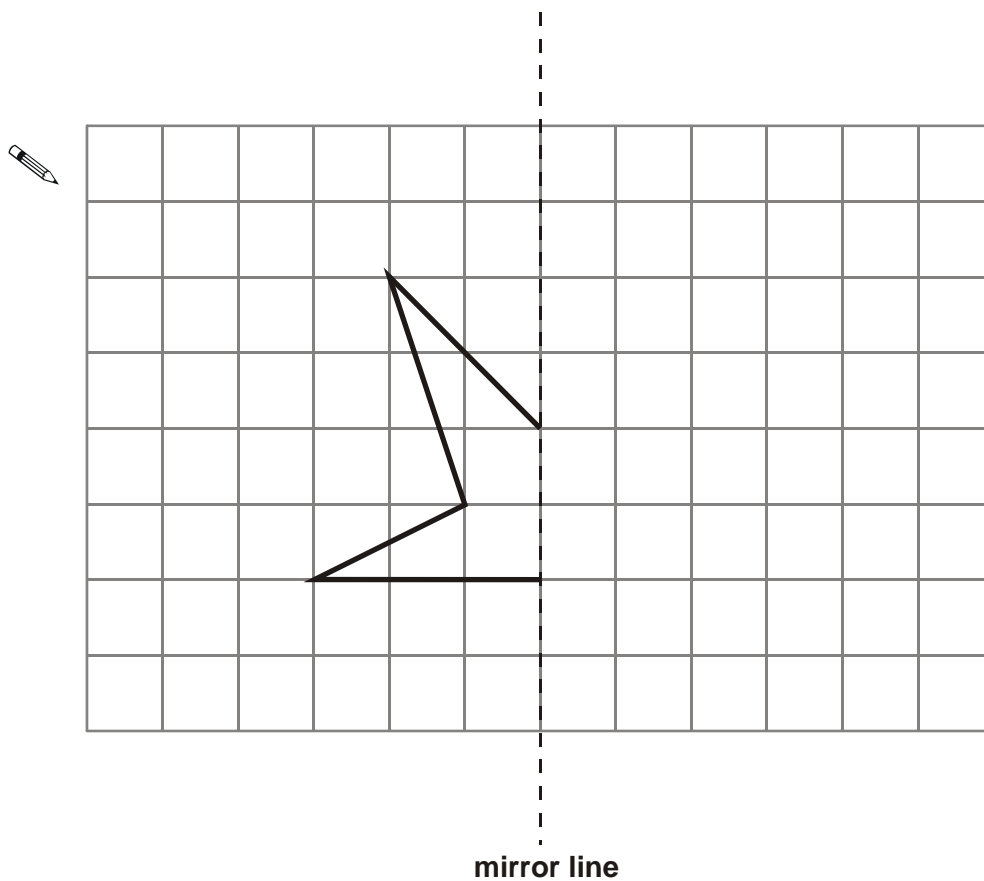
Write the coordinates of point **D**.



1 mark

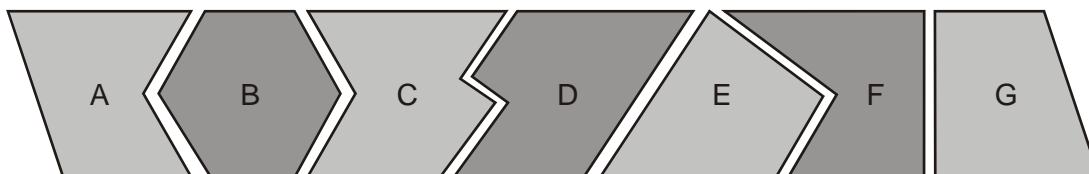
43. Complete the diagram below to make a shape that is symmetrical about the mirror line.

Use a ruler.



1 mark

44. Here are seven shapes.



Write the letters of the two shapes which are **pentagons**.

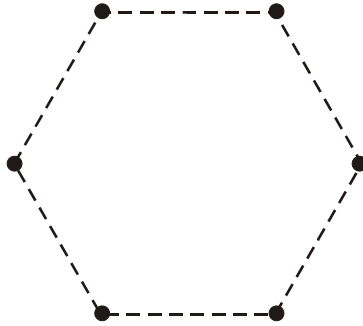
..... and

1 mark

45. Here is a regular hexagon.

Join three of the dots to make an **equilateral** triangle.

Use a ruler.

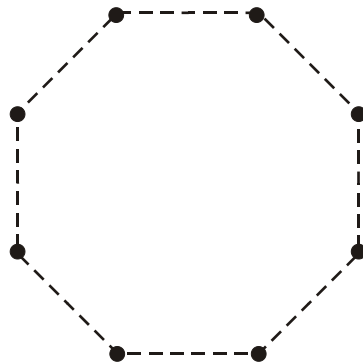


1 mark

Here is a regular octagon.

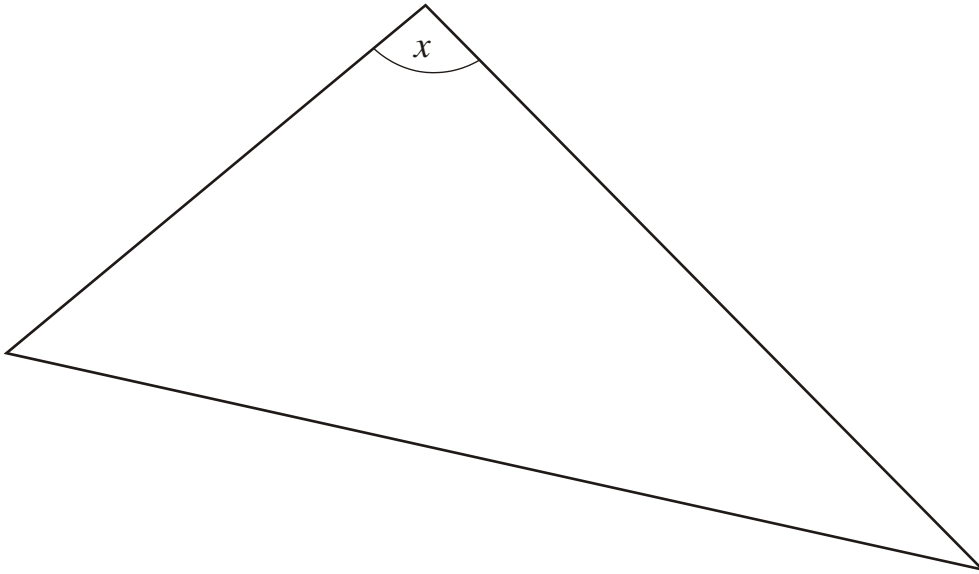
Join three of the dots to make an **isosceles** triangle.

Use a ruler.



1 mark

46.



Measure angle x accurately.

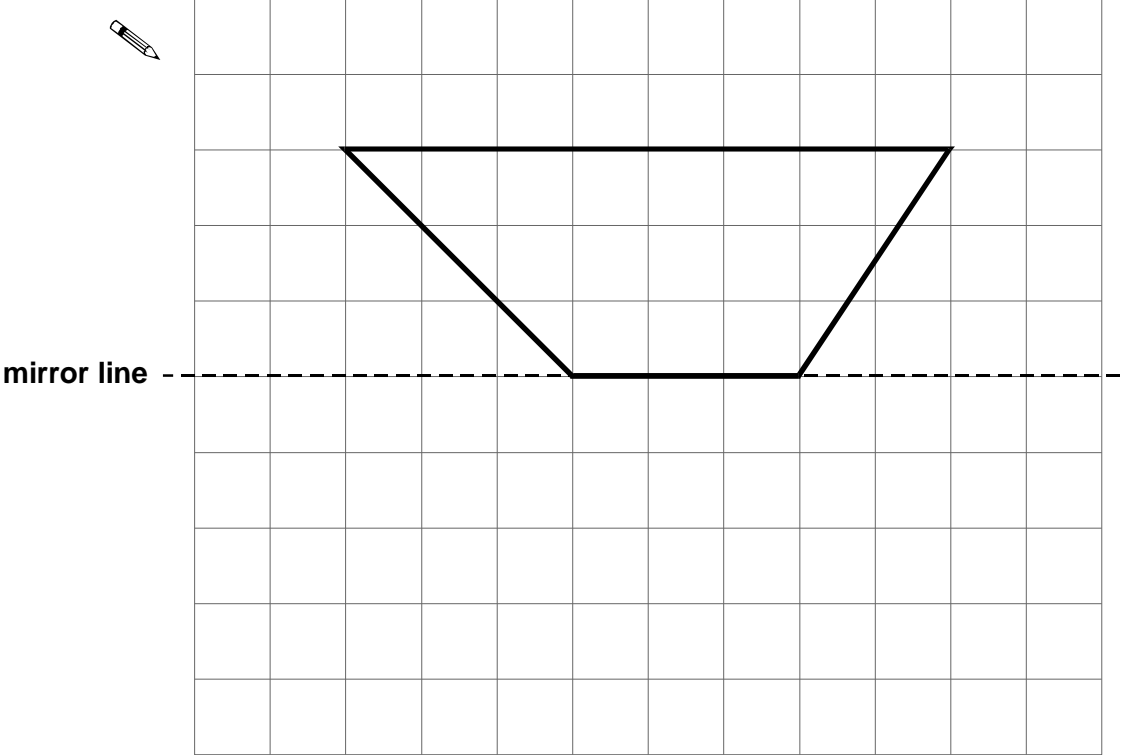
Use a protractor (angle measurer).

A small icon of a pencil is positioned to the left of a horizontal rectangular box, indicating where the student should write their answer.

1 mark

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

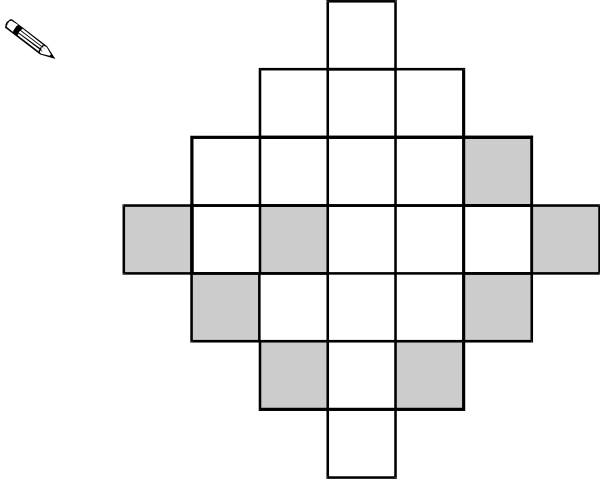
Use a ruler.



1 mark

48. Here is a grid with eight squares shaded in.

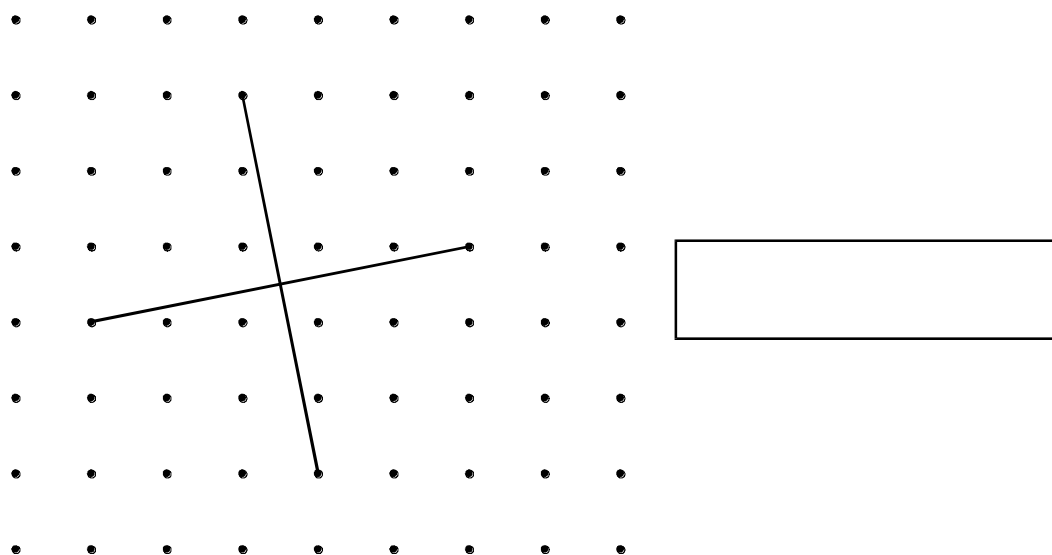
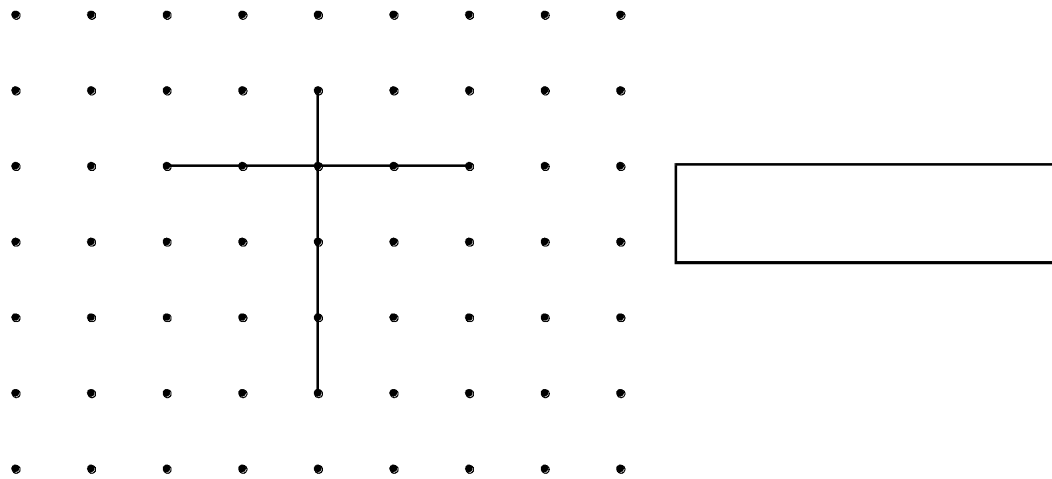
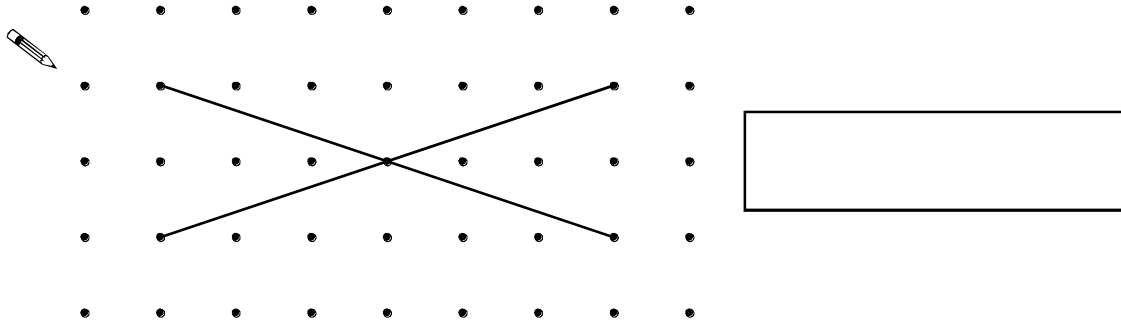
Shade in two more squares to make a symmetrical pattern.



1 mark

49. These diagrams show the **diagonals** of three **quadrilaterals**.

Write the names of the quadrilaterals in the boxes.



2 marks

50. An isosceles triangle has a perimeter of 12cm.

One of its sides is 5cm.

What could the length of each of the other two sides be?

Two different answers are possible.

Give **both** answers.



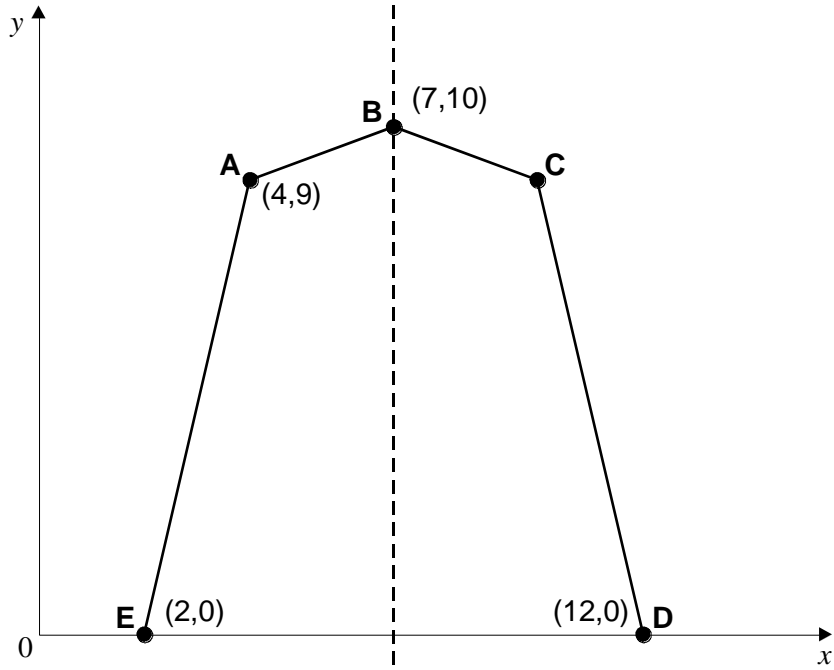
and

and


2 marks

51. Here is a pentagon drawn on a coordinate grid.

The pentagon is symmetrical.

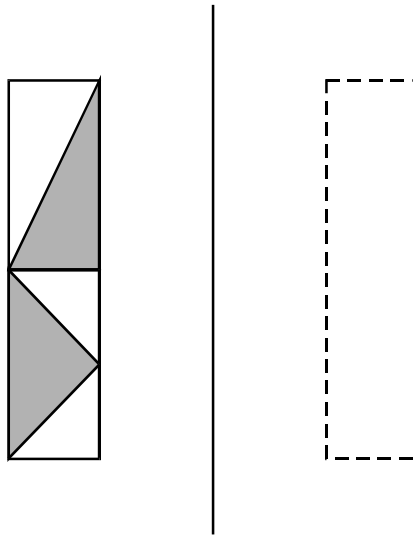


What are the coordinates of point **C**?



1 mark

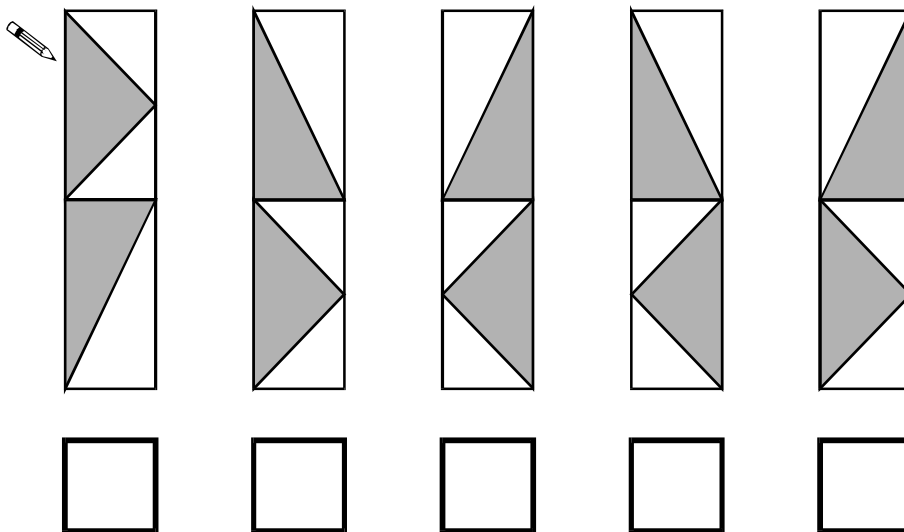
52. Here is a design and a mirror line.



mirror line

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

Tick (✓) the correct design.

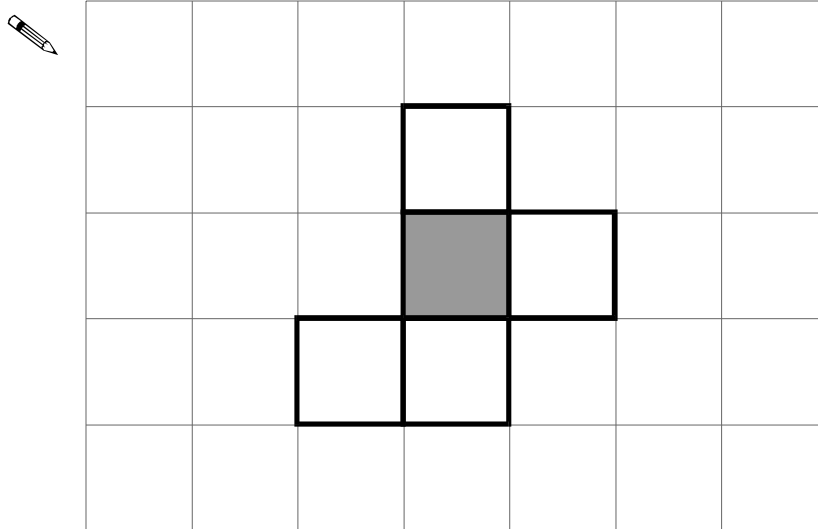


1 mark

53. Here is the net of a cube with no top.

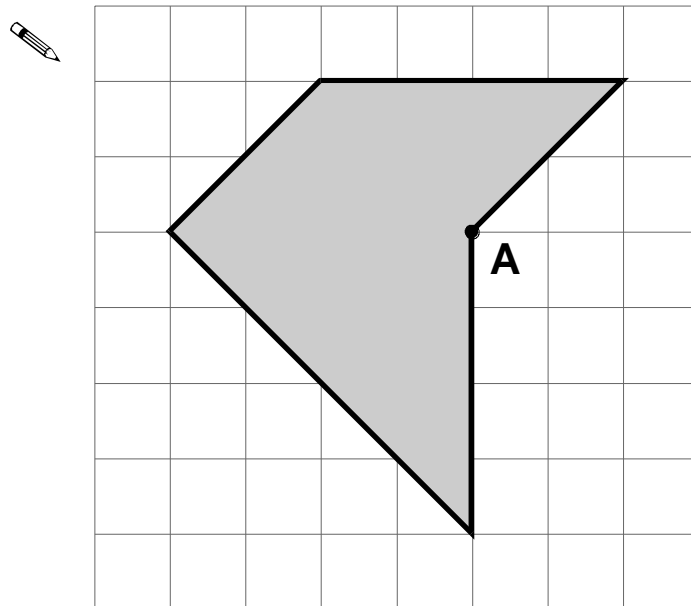
The shaded square shows the bottom of the cube.

Draw an extra square to make the net of a cube which does have a top.



1 mark

54. Draw **two straight lines** from point **A** to divide the shaded shape into a square and two triangles.



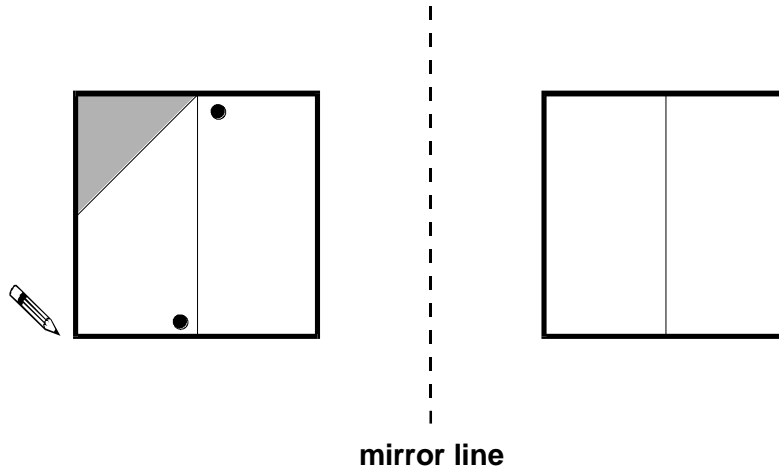
1 mark

55. Here is a square with a design on it.

The square is reflected in the mirror line.

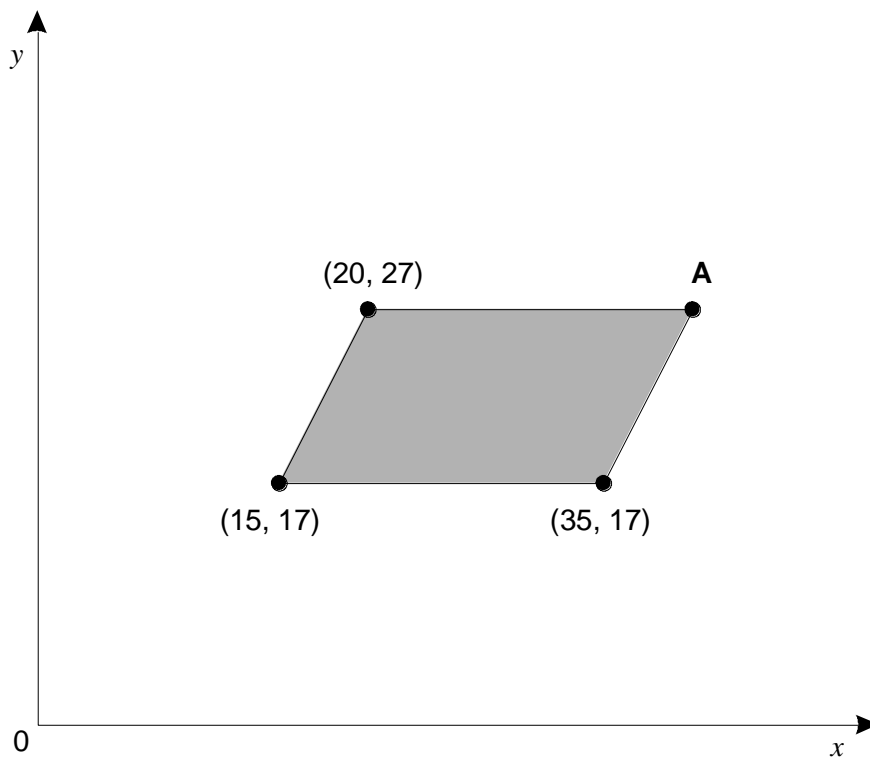
Draw the missing triangle and dots on the reflected square.

You may use a mirror or tracing paper.




1 mark

56. The shaded shape is a parallelogram.

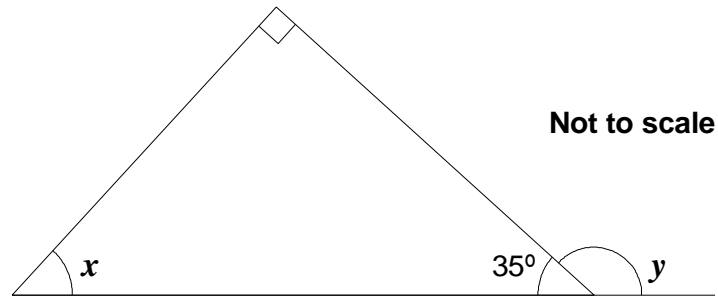


Write in the coordinates of point **A**.




1 mark

57. Look at this diagram.



Calculate the size of angle x and angle y .

Do **not** use a protractor (angle measurer).


 $x =$

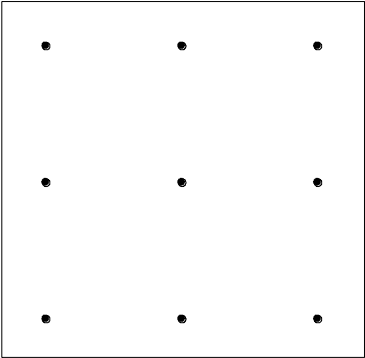
1 mark

 $y =$

1 mark

58. On the grid join dots to make a triangle which does **not** have a **right angle**.

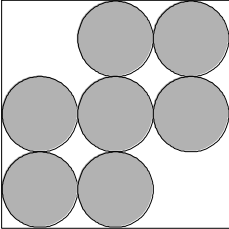
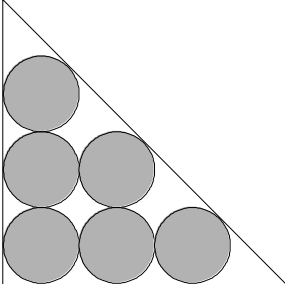
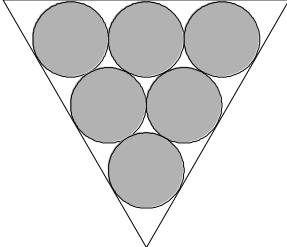
Use a ruler.



1 mark

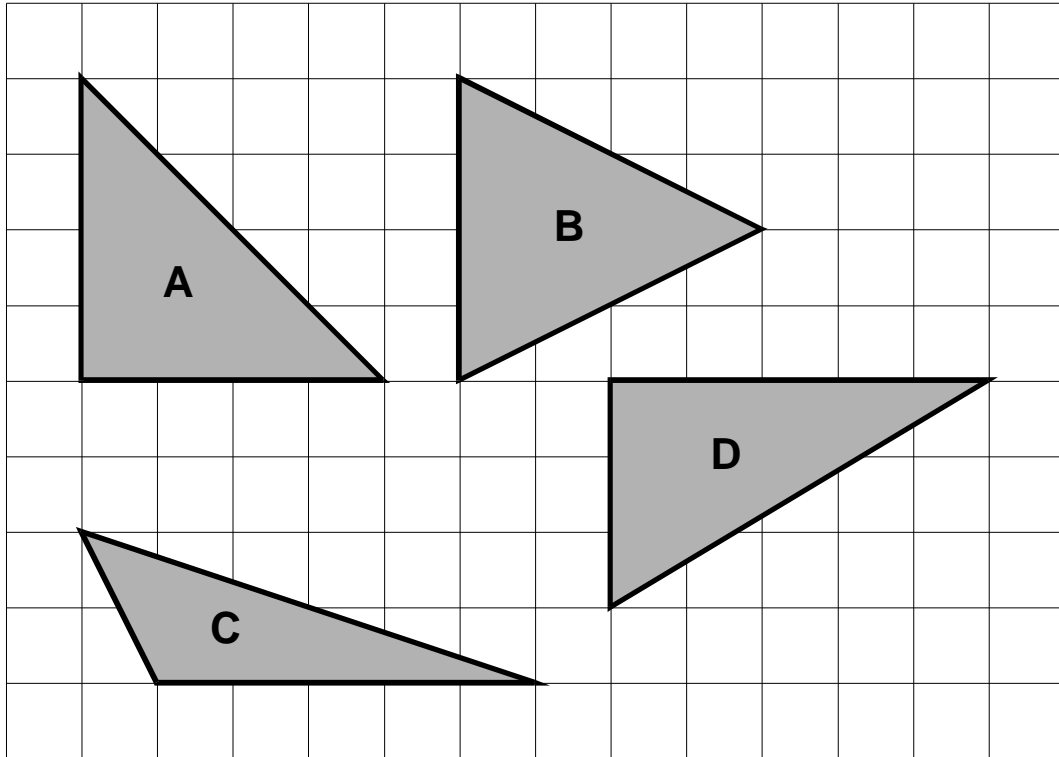
59. Use a ruler to draw **one** line of symmetry on **each** of these designs.

You may use a mirror or tracing paper.



2 marks

60. Here are four triangles drawn on a square grid.



Write the letter for each triangle in the correct region of the sorting diagram.

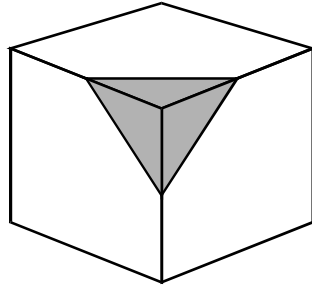
One has been done for you.



	has a right angle	has an obtuse angle	has 3 acute angles
is isosceles	A		
is not isosceles			

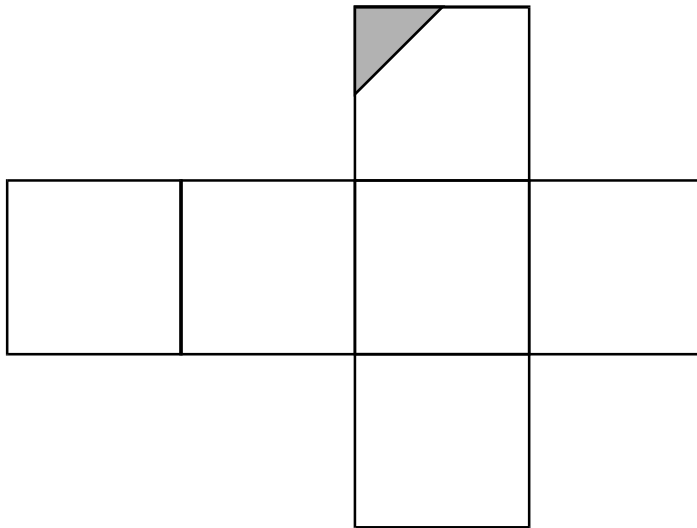
2 marks

61. A cube has shaded triangles on three of its faces.



Here is the net of the cube.

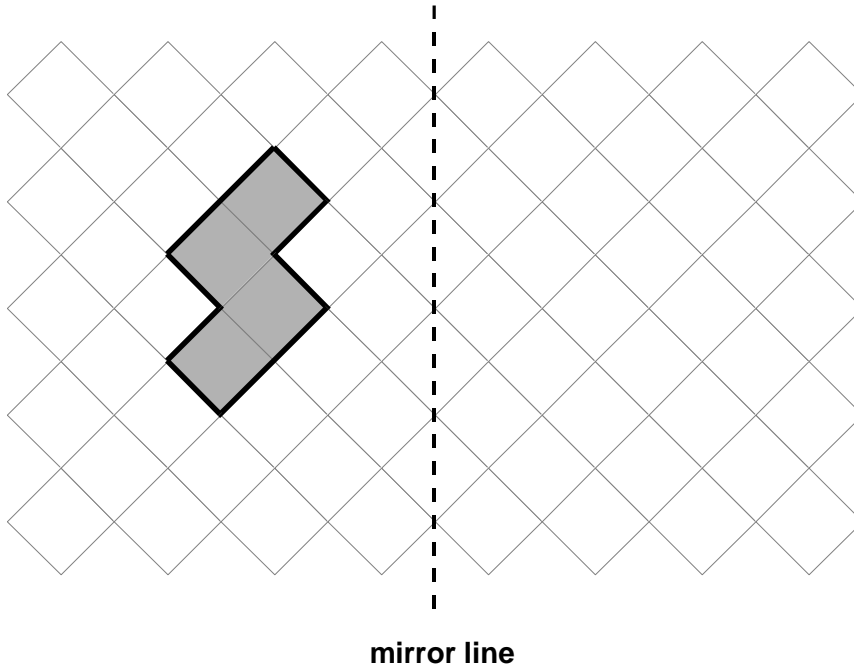
Draw in the two missing shaded triangles.



1 mark

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

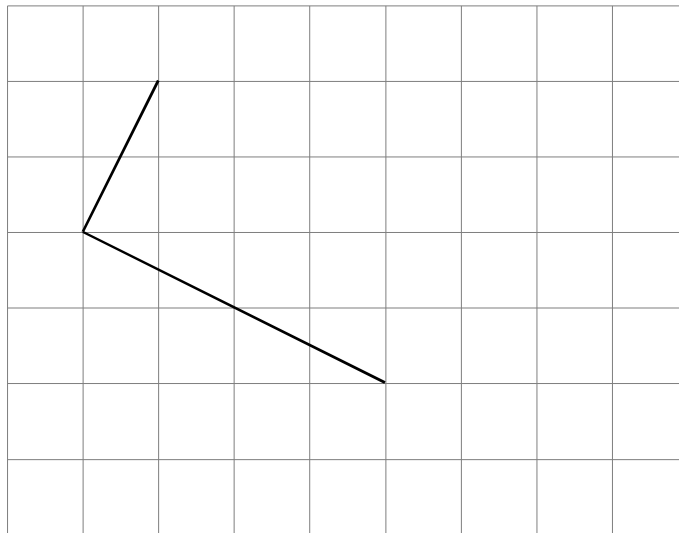
You may use a mirror or tracing paper.



1 mark

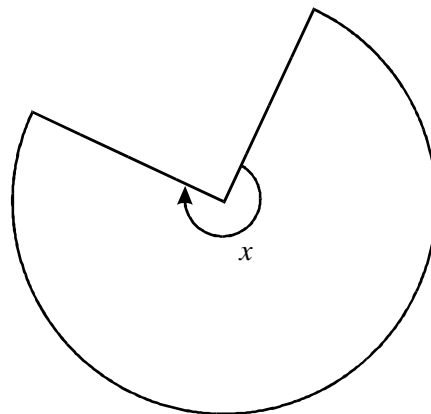
63. Draw **two more straight lines** to make a rectangle.

Use a ruler.



1 mark

64. This shape is **three-quarters of a circle**.

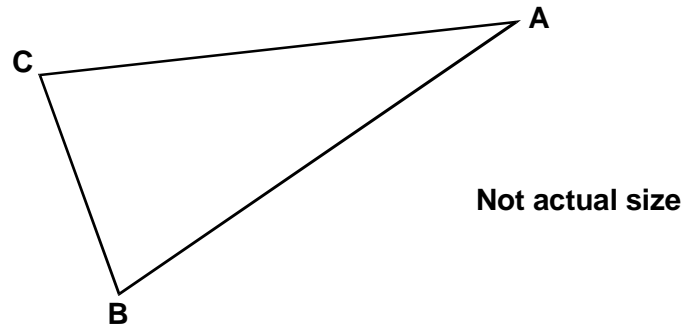


How many degrees is **angle x** ?



1 mark

65. Triangle **ABC** is isosceles and has a perimeter of 20 centimetres.
Sides **AB** and **AC** are each twice as long as **BC**.



Calculate the length of the side **BC**.

Do **not** use a ruler.

 Show your **working**. You may get a mark.

cm

2 marks

66. This is a centimetre grid.

Draw **3 more lines** to make a **parallelogram** with an **area of 10cm^2**

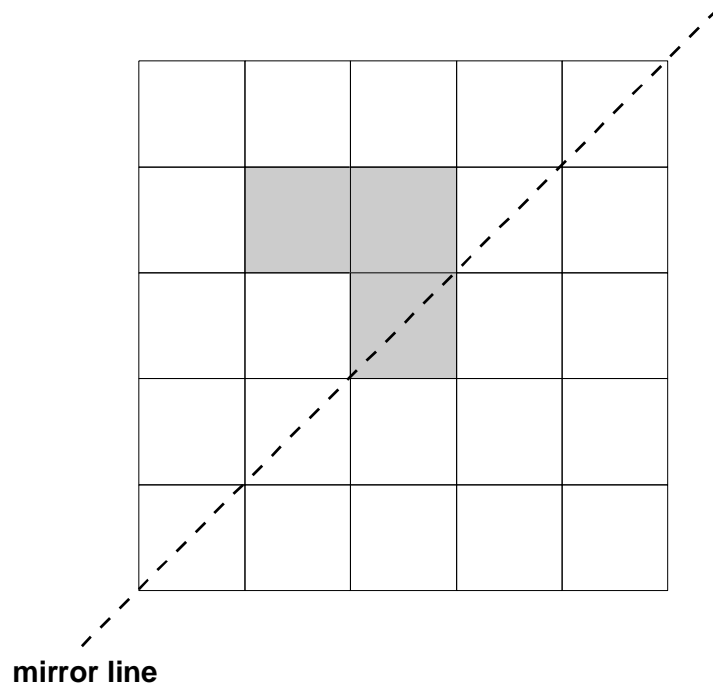
Use a ruler.



1 mark

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

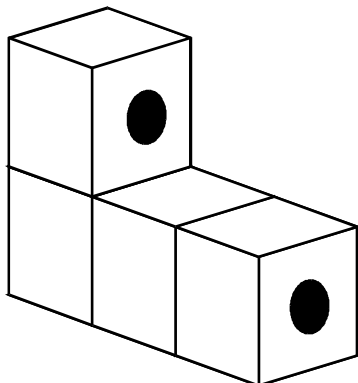
You may use a mirror or tracing paper.



1 mark

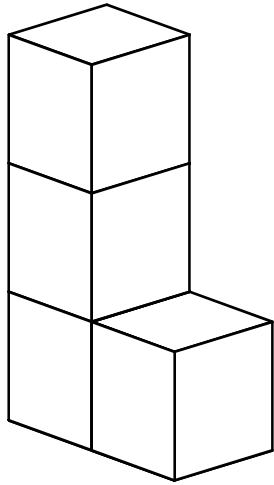
68. Tom makes this shape from four cubes stuck together.

Two circles are drawn on the shape.



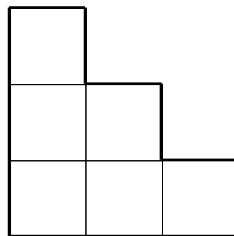
Tom moves the shape.

Draw the **circles** on the shape in its new position.



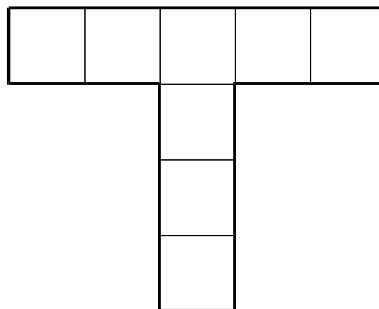
1 mark

69. Shade **one third** of this shape.



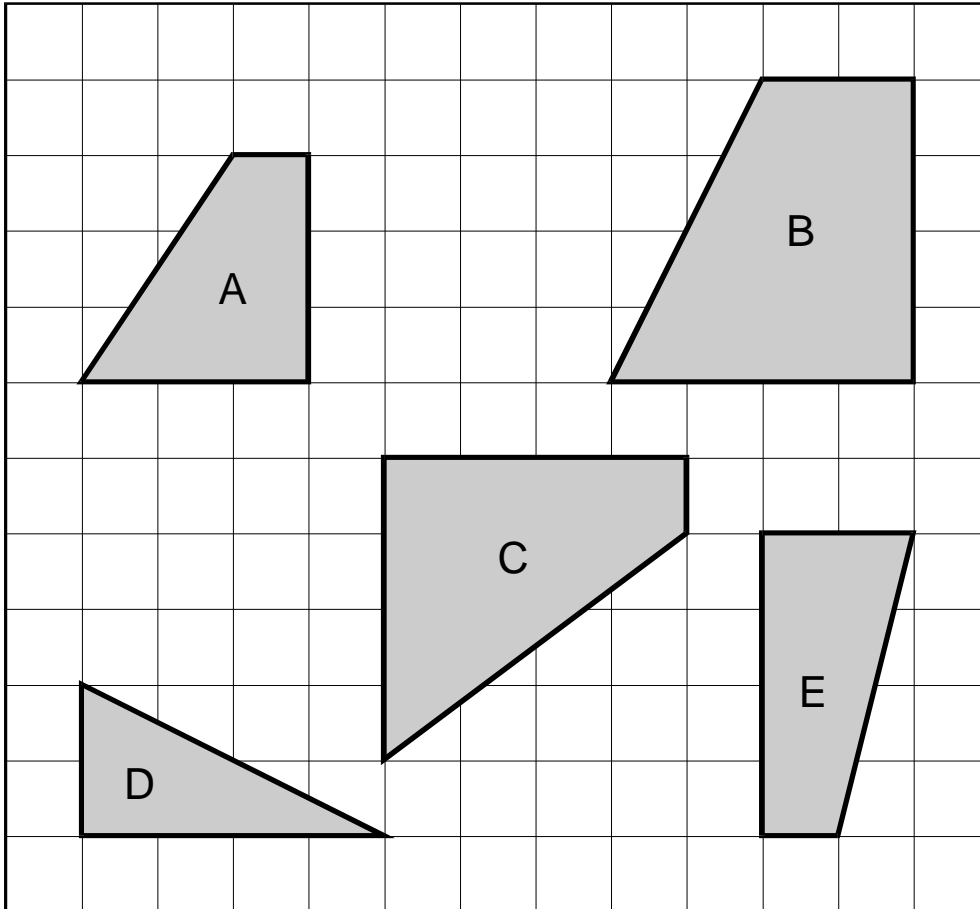
1 mark

Shade **one quarter** of this shape.




1 mark

70. Here are five shapes on a square grid.



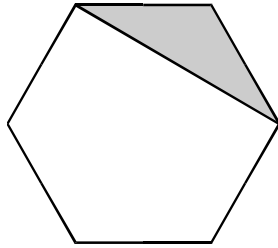
Which **two** shapes fit together to make a **square**?

 and

1 mark

71. These two shaded triangles are each inside a regular hexagon.

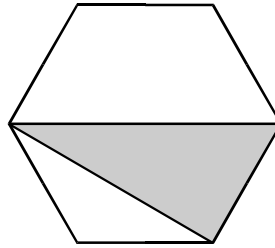
Under each hexagon, put a ring around the correct name of the shaded triangle.



equilateral

isosceles

scalene



equilateral

isosceles

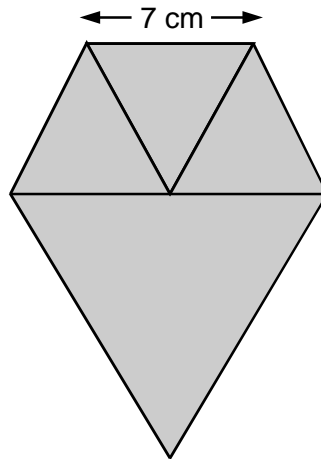
scalene

1 mark

72. Lauren has **three small equilateral triangles** and **one large equilateral triangle**.

The small triangles have sides of **7 centimetres**.


Lauren makes this shape.



Not actual size

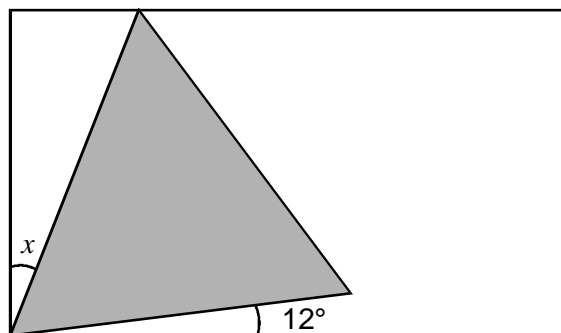
Calculate the **perimeter** of the shape.

Do **not** use a ruler.



1 mark

73. Here is an **equilateral triangle** inside a **rectangle**.



Not to scale

Calculate the value of angle x .

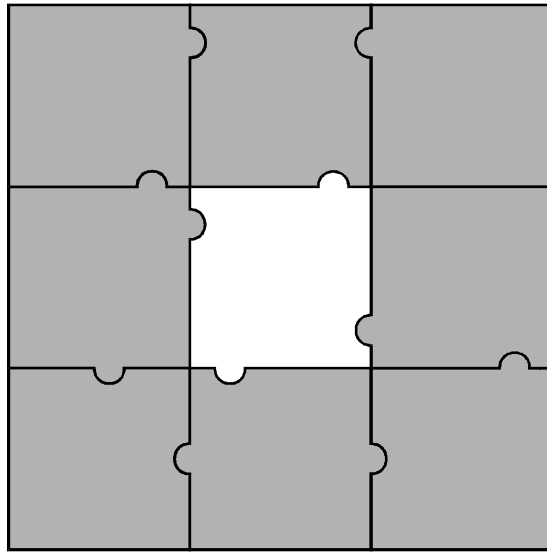
Do **not** use a protractor (angle measurer).



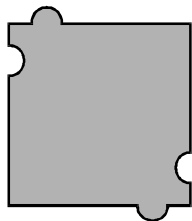
Show your **method**.
You may get a mark.

2 marks

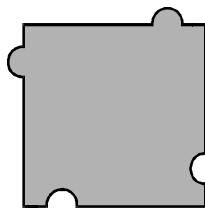
74. Here is a jigsaw with one piece **missing**.



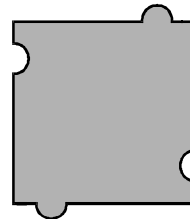
Which **one** of the pieces below fits the hole in the middle?



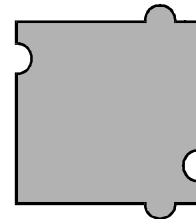
A



B



C

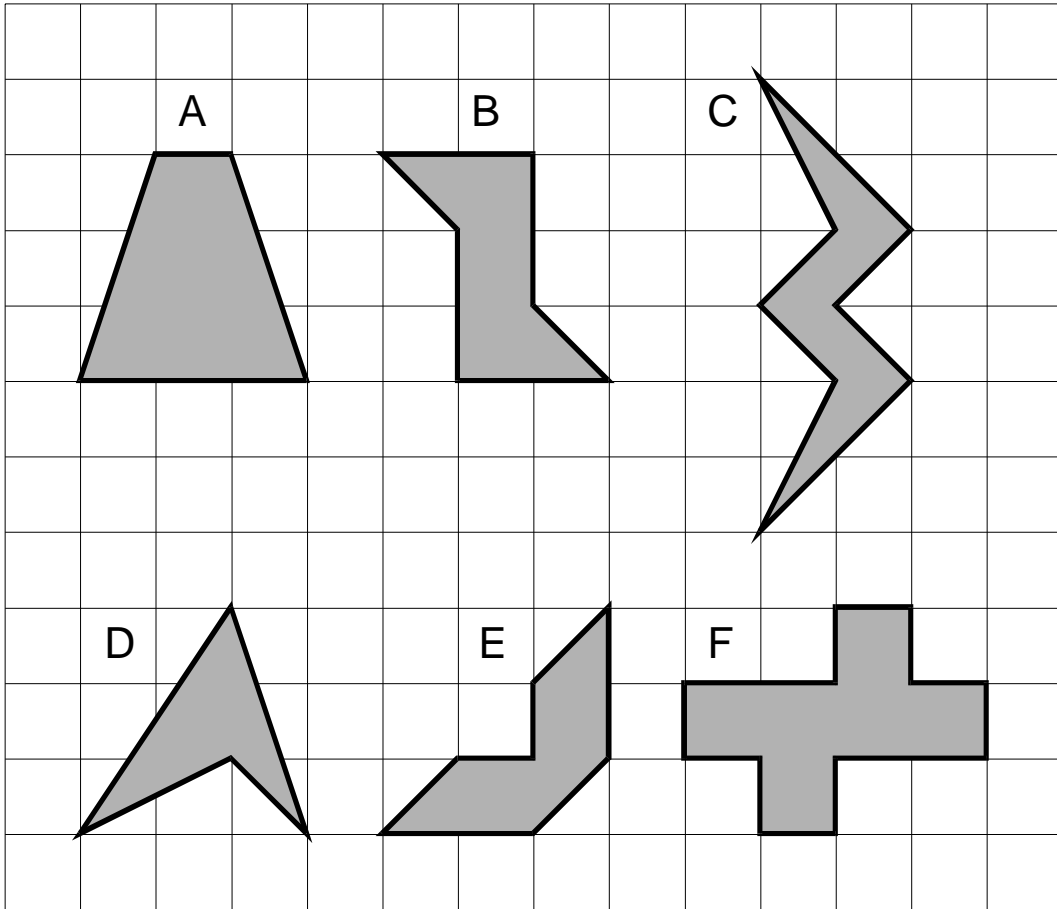


D



1 mark

75. Here are some shaded shapes on a grid.



Which **three** shapes have **reflective symmetry**?

You may use a mirror or tracing paper.



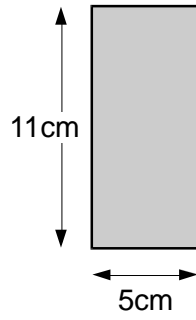
.....

.....

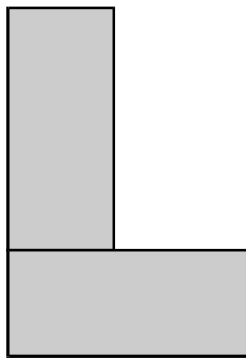
.....

2 marks


76. Liam has two rectangular tiles like this.



He makes this L shape.

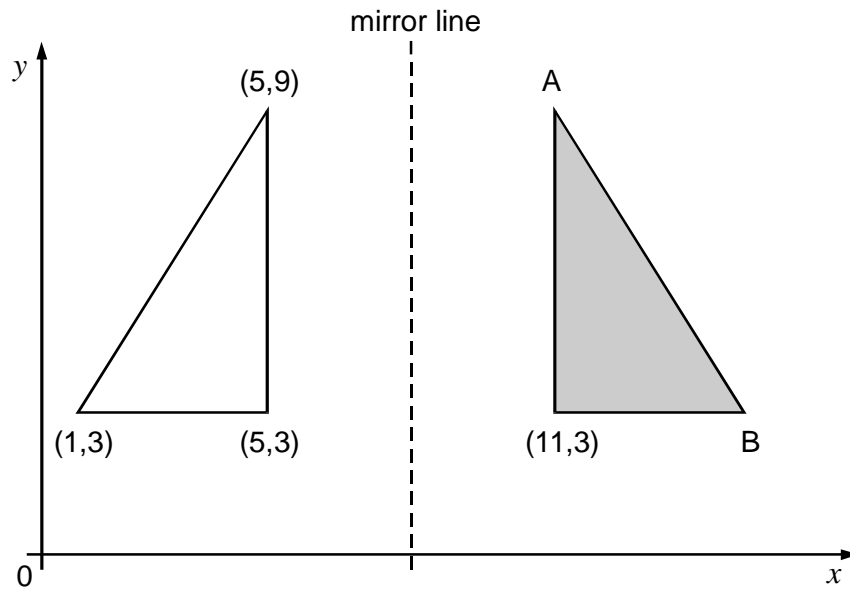


What is the **perimeter** of Liam's L shape?




1 mark

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



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

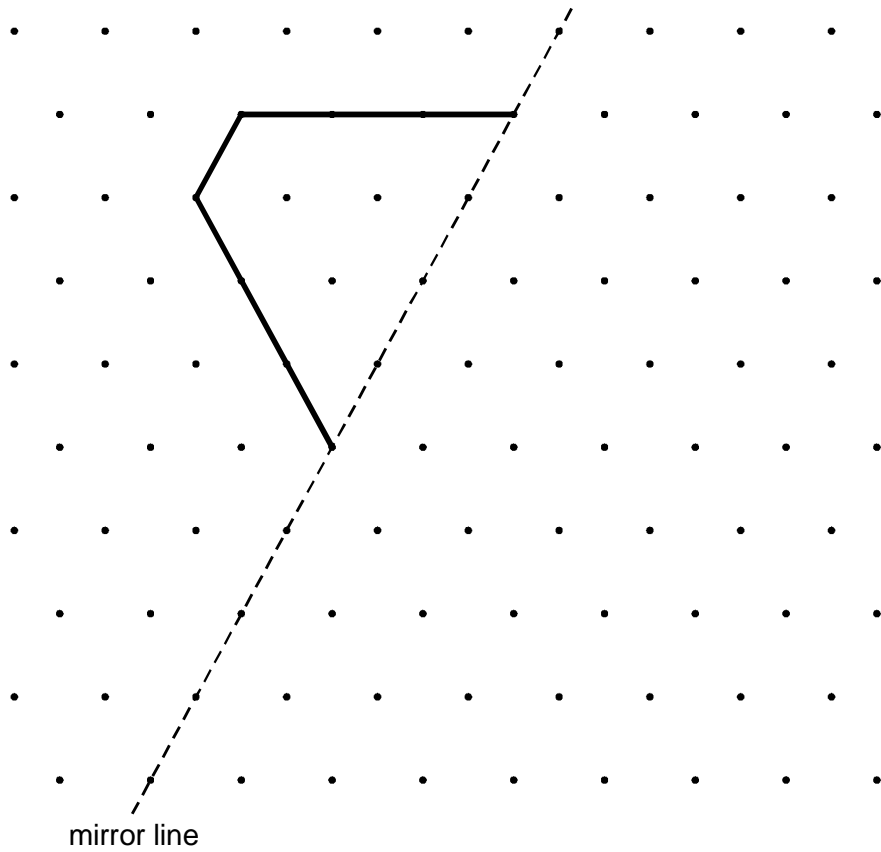
 A is B is

2 marks

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

Use a ruler.

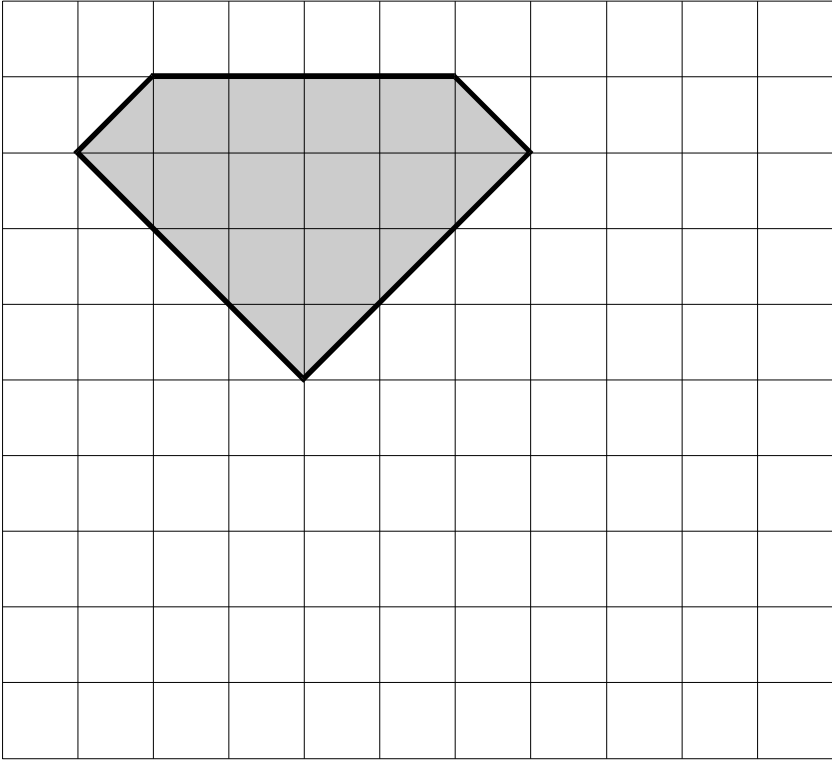
You may use a mirror or tracing paper.



1 mark

79. On the grid, draw a **rectangle** which has the **same area** as this shaded pentagon.

Use a ruler.

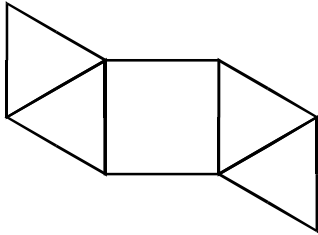


1 mark

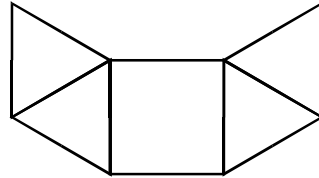
80. Look at each of these diagrams.

Put a tick (✓) if it is the **net of a square based pyramid**.

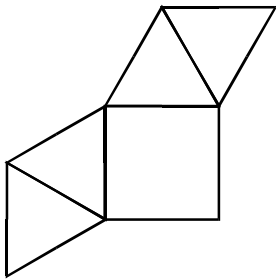
Put a cross (✗) if it is **not**.



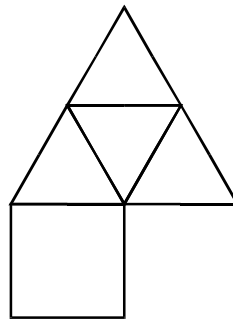
.....



.....



.....



.....

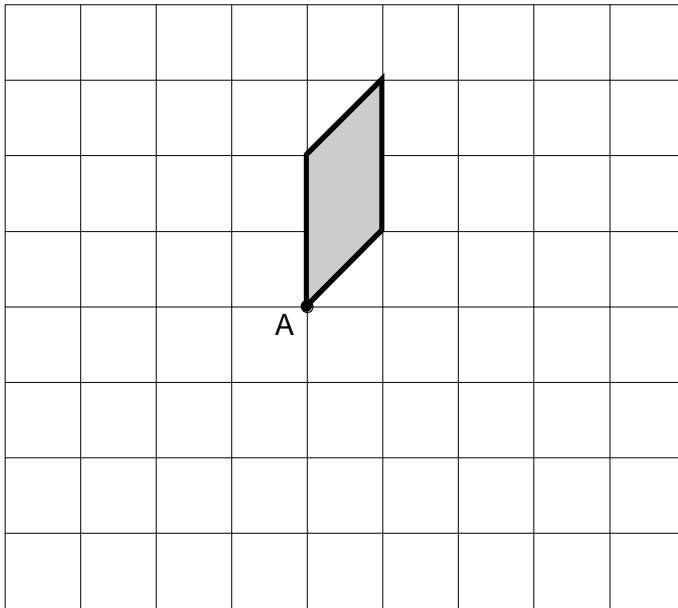
2 marks

81. Here is a shaded shape on a grid.

The shape is **rotated 90° clockwise** about point **A**.

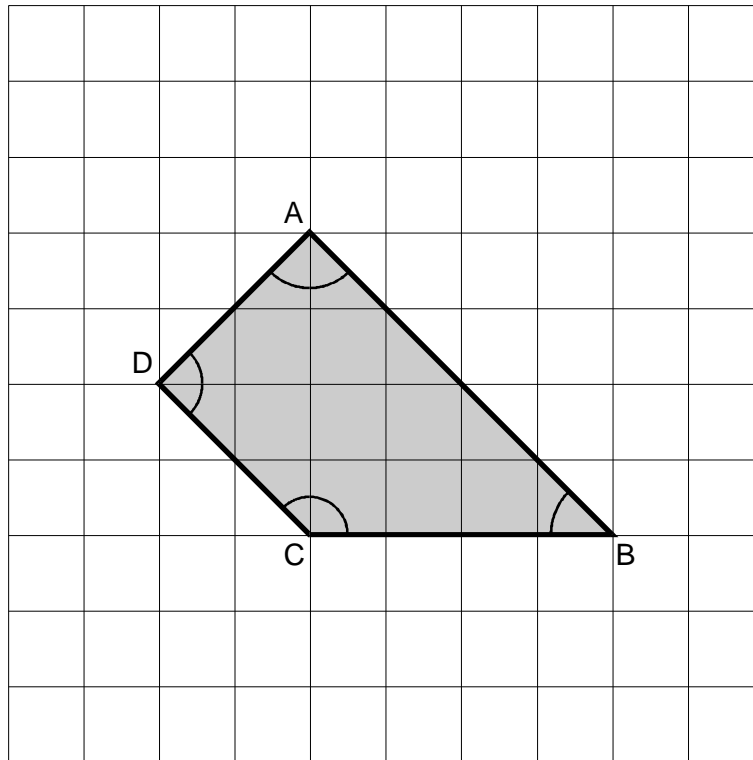
Draw the shape in its **new position** on the grid.

You may use tracing paper.



2 marks

82. Here is a shape on a square grid.



For each sentence, put a tick (✓) if it is true.

Put a cross (✗) if it is not true.



Angle **C** is an **obtuse** angle.

Angle **D** is an **acute** angle.

Line **AD** is **parallel** to line **BC**.

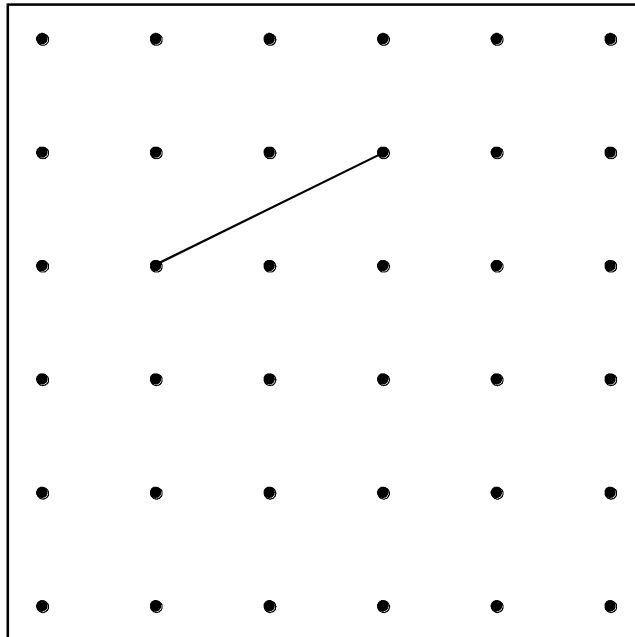
Line **AB** is **perpendicular** to line **AD**.

2 marks

83. The line on the grid is one side of a **square**.

On the grid, draw the **other three sides** of the square.

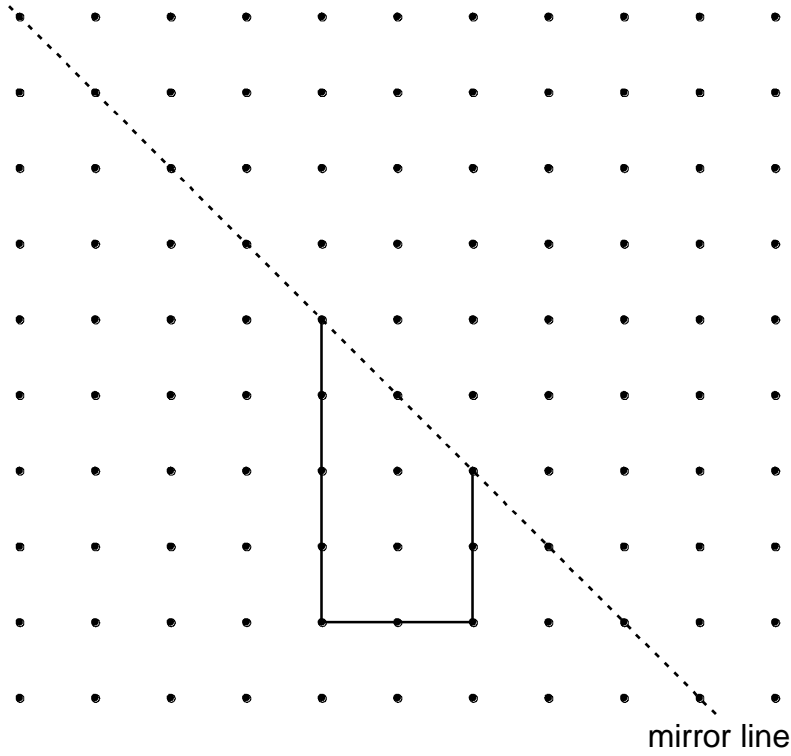
Use a ruler.



1 mark

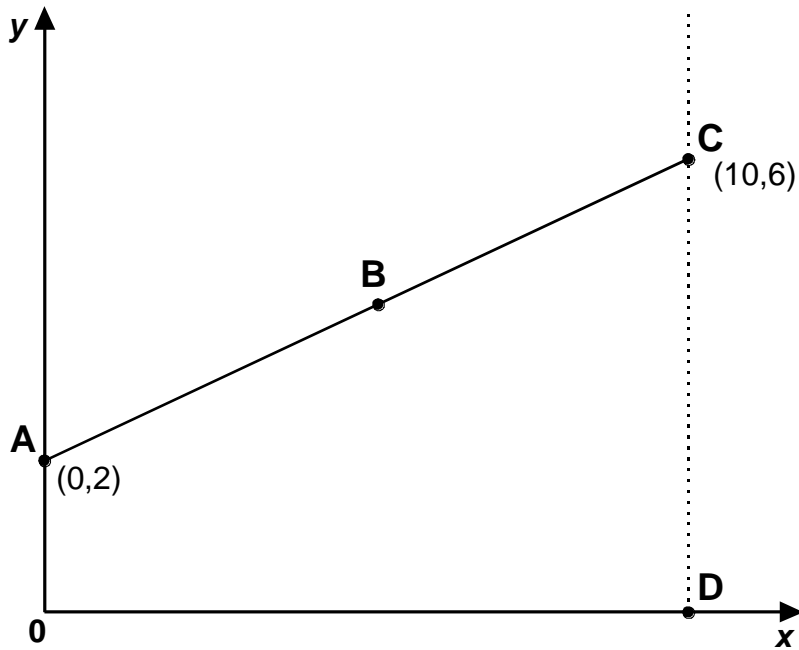
84. Use a ruler to draw the **reflection** of this shape in the mirror line.

You may use a mirror or tracing paper.




1 mark

85. Here is a graph



The points **A**, **B** and **C** are **equally spaced**.


What are the **co-ordinates** of the **point B**?



1 mark

Point **D** is directly below point **C**.

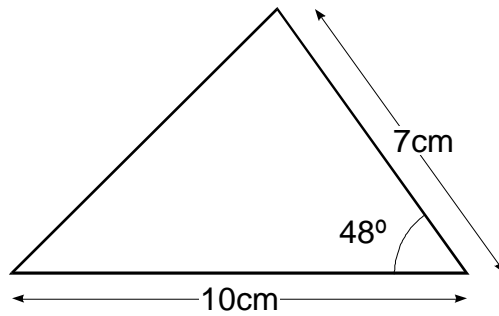
What are the **co-ordinates** of the **point D**?



1 mark

86. Here is a sketch of a triangle.

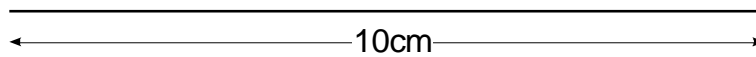
It is not drawn to scale.



Draw the full size triangle **accurately**, below.

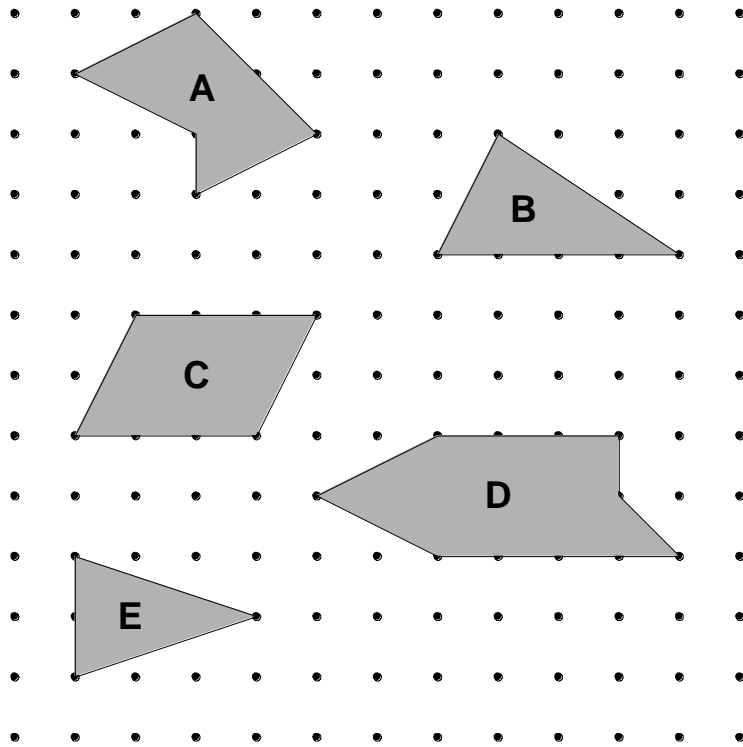
Use an angle measurer (protractor) and a ruler.

One line has been done for you.



2 marks

87. Here are five shapes on a square grid.



Write in the missing letters.



Shape

has two pairs of parallel sides.

1 mark



Shape

is a pentagon.

1 mark



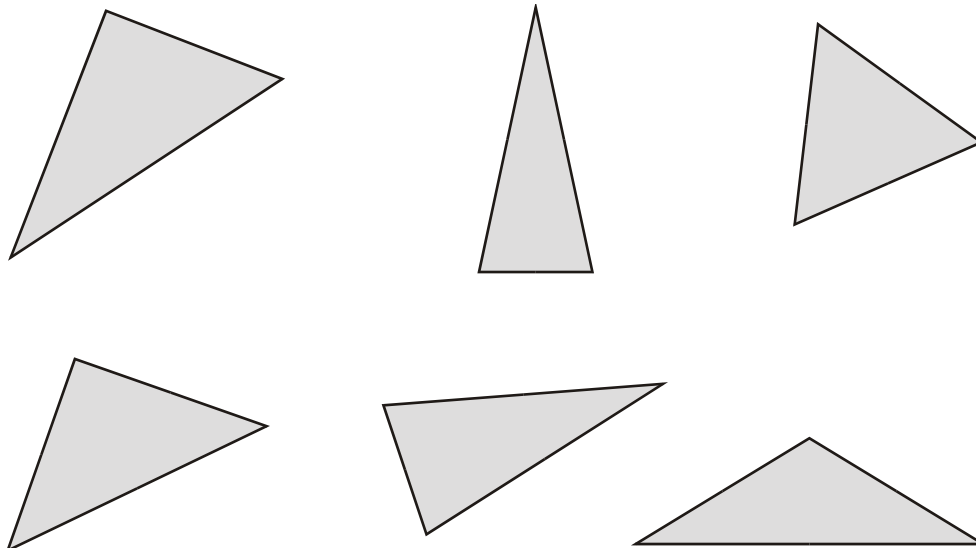
Shape

has reflective symmetry.

1 mark

88. Here are six triangles. One of them is an **equilateral** triangle.

Put a tick (✓) in the equilateral triangle.



1 mark

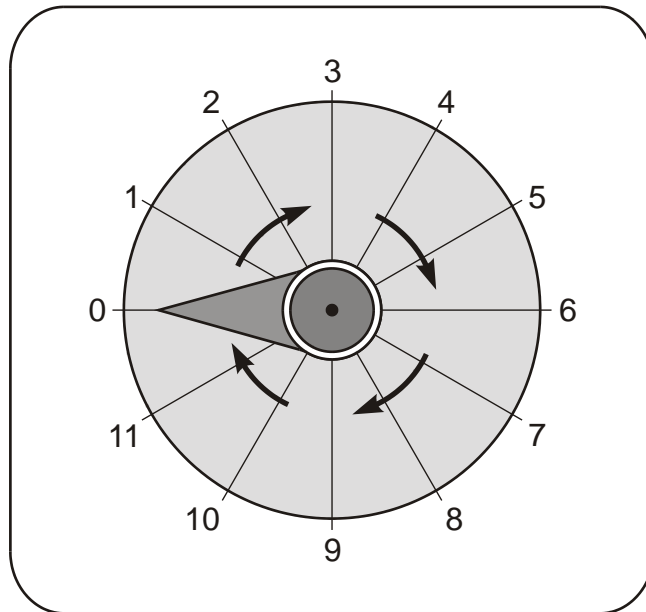
Write **one property** which makes **equilateral** triangles **different** from **all** other triangles.



.....
.....
.....


1 mark

89. Here is a dial.



The pointer on this dial turns in a **clockwise** direction.
The pointer is at **0**.


Which **number** does it point to after a turn of **270°**?



1 mark

The pointer moves from **10** to **11**.

How many **degrees** does it turn through?

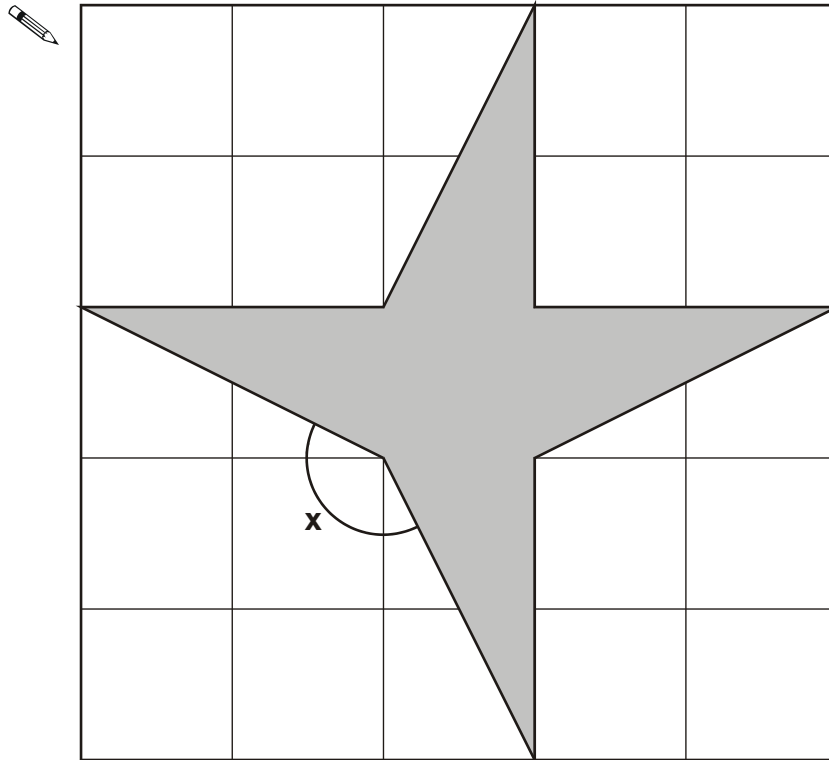


1 mark

90. Here is a shaded shape on a grid made of squares.

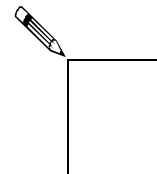
Draw the line of symmetry of the shaded shape.

You may use a mirror or tracing paper.



1 mark


What **fraction** of the area of the grid is shaded?



1 mark

Measure **angle x** in degrees.

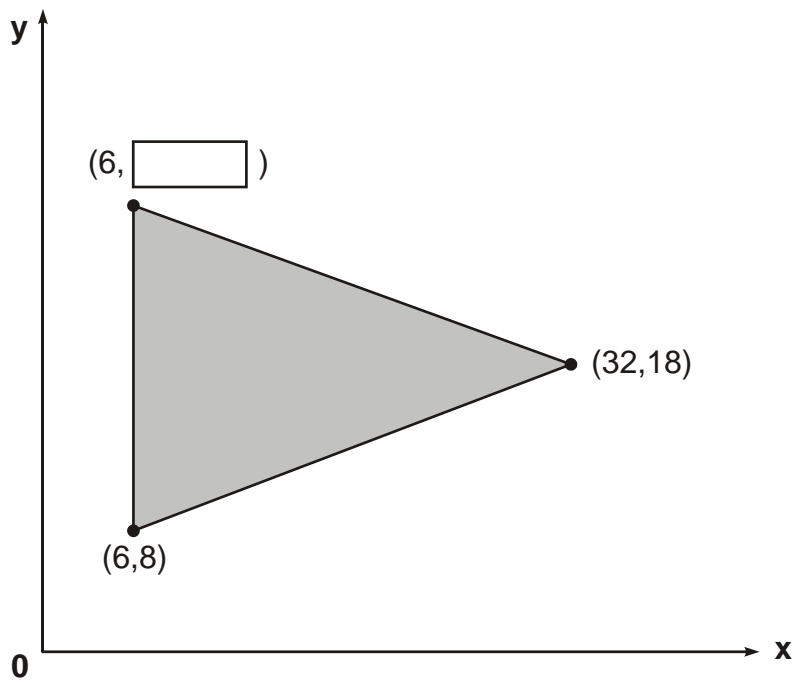
Use an angle measurer (protractor).



1 mark

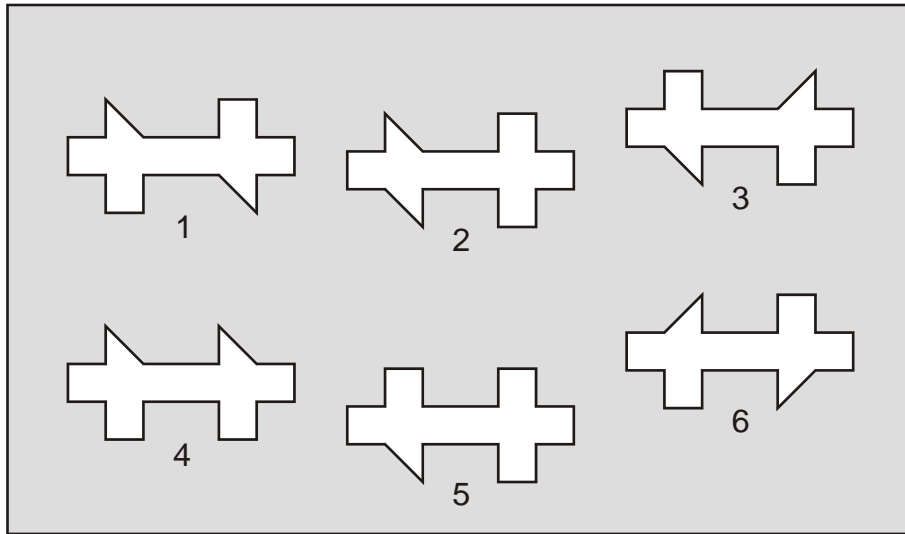
91. The shaded shape is an **isosceles** triangle.

Write in the missing co-ordinate.



1 mark

92. This board has six holes cut in it.

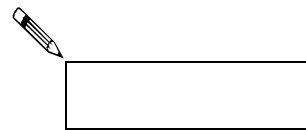


Here is a shape cut out of card.



Which hole will the shape fit exactly into?

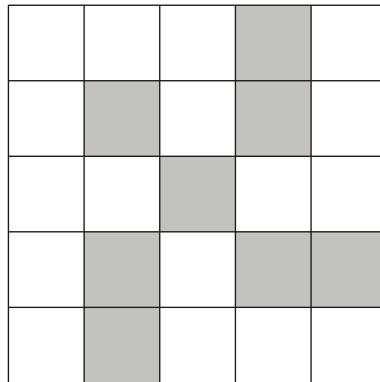
You may use tracing paper.



1 mark

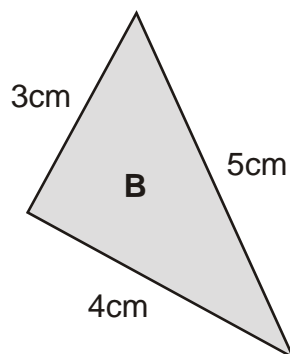
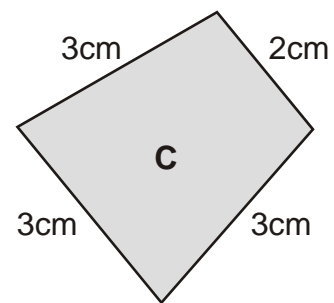
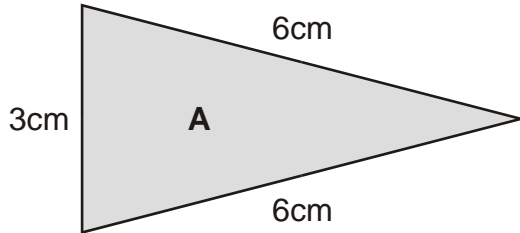
93. Shade in **one more** square so that this design has **rotational** symmetry of **order 4**.

You may use tracing paper



1 mark

94. Here are some shapes.



Write the letters **B** and **C** in the **sorting diagram** below to show where shapes **B** and **C** should go.

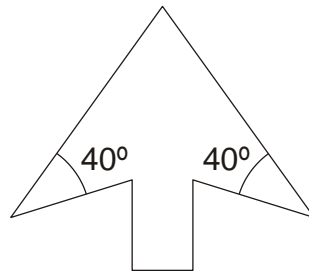
Shape **A** is done for you.



shapes	no sides equal	only 2 sides equal	more than 2 sides equal
3 sides		A	
more than 3 sides			

2 marks

95. This is a design for an arrowhead.

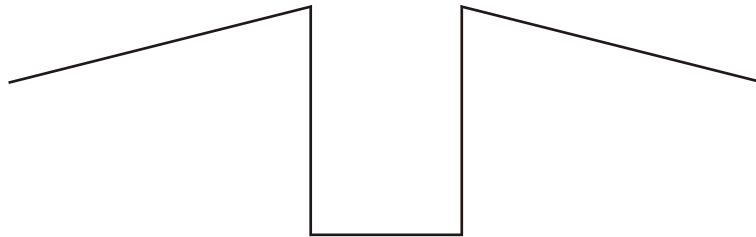


Below is part of a larger scale drawing of the arrowhead.

The drawing has the same size angles as the design.

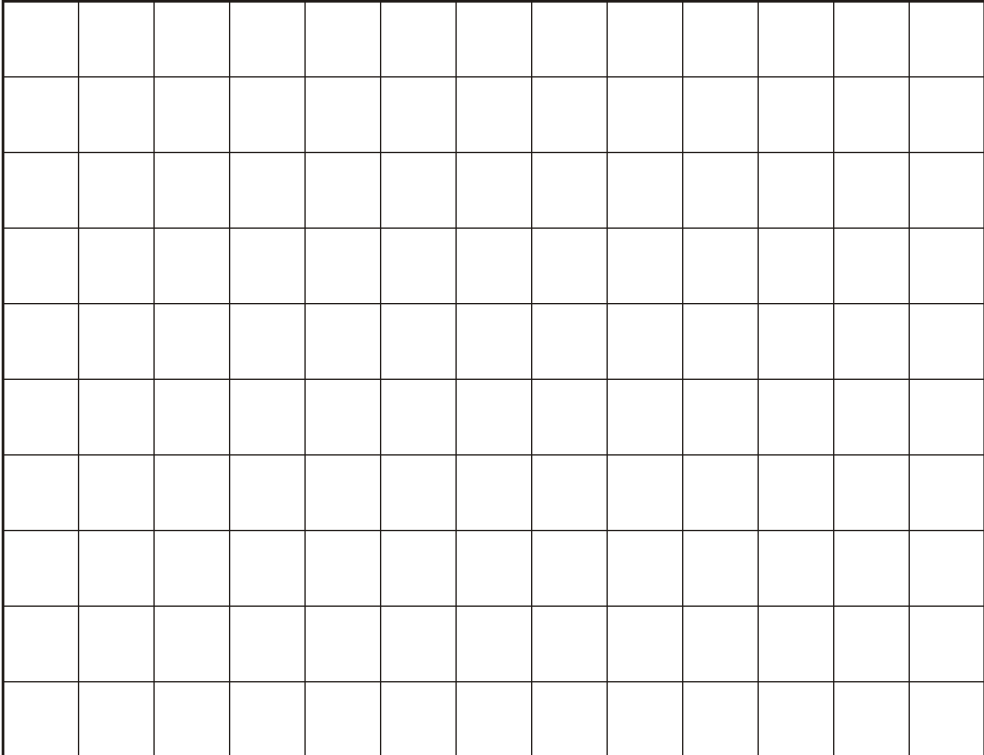
Draw two more lines to complete the arrowhead **accurately**.

Use an angle measurer (protractor).



2 marks

96. On the grid below, use a ruler to draw a **pentagon** that has **three right angles**.

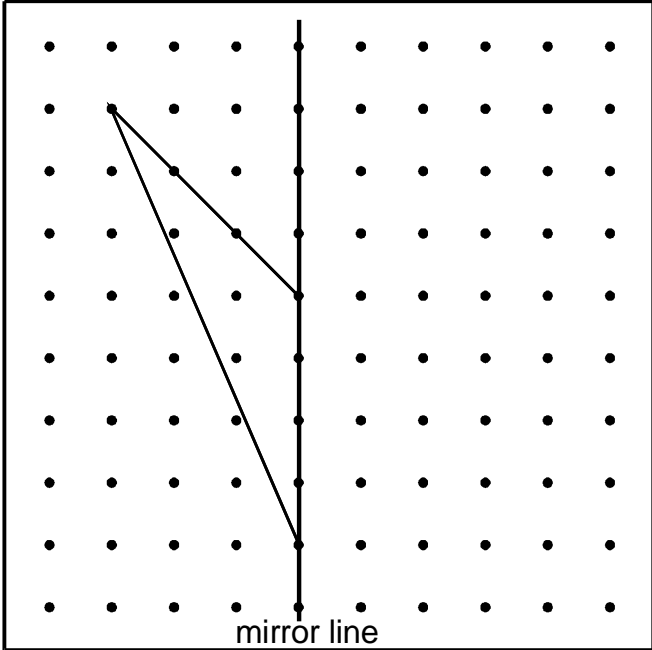


1 mark

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

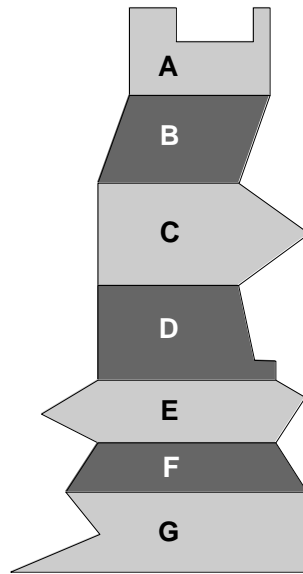
You may use a ruler.

You may use tracing paper.

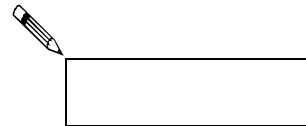


1 mark

98. Here are 7 shapes.



How many of the shapes are **octagons**?



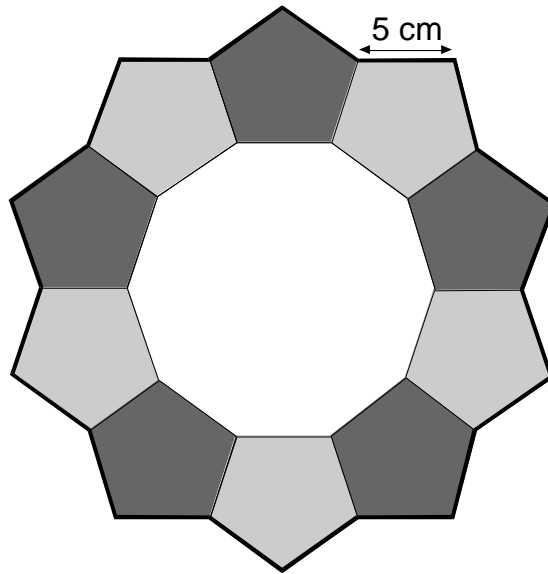
1 mark

Which **two** shapes are **hexagons**?




1 mark

99. This ring is made of **regular pentagons**, with sides of **5 centimetres**.



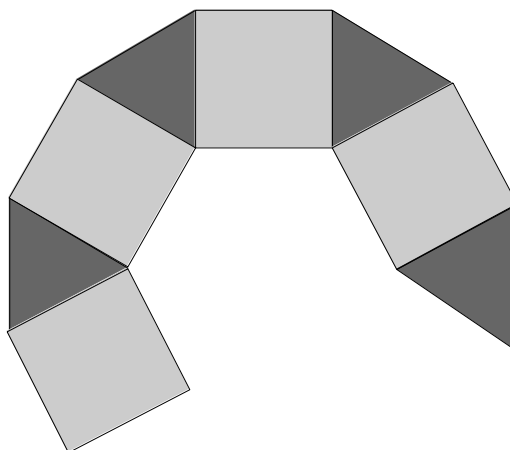
What is the **length** of the **outer edge** of the ring?

 cm

1 mark

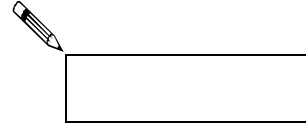
Here is part of a new ring.

It is made of **squares** and **triangles**.



The pattern is continued to complete the ring.

What is the **total** number of **squares** used in the complete ring?

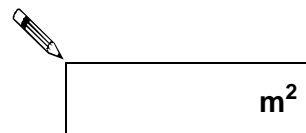
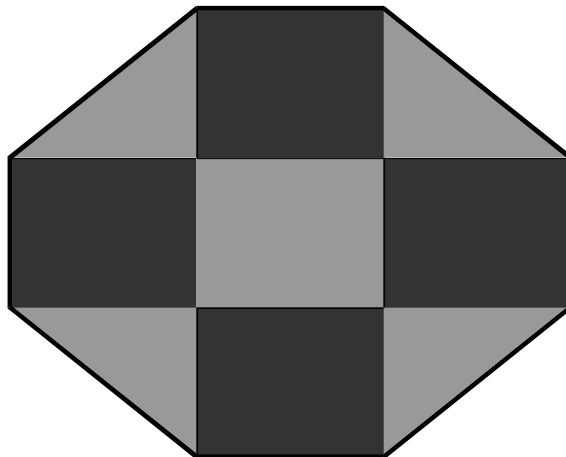


1 mark

100. This plan of a garden is made of rectangles and triangles.

The area of each **rectangle** is **12 square metres**.

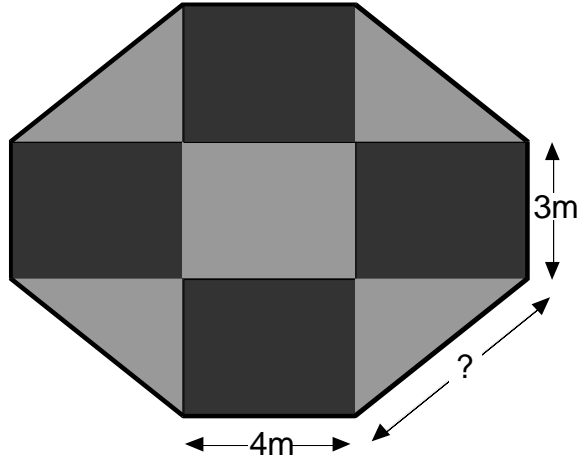
What is the **area** of the **whole garden**?



1 mark

The **perimeter** of the garden is **34 metres**.

What is the length of the **longest side** of each triangle?

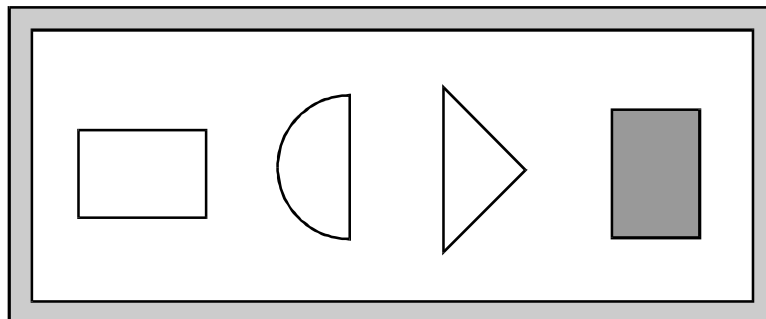


Show your **working**.
You may get a mark

m

2 marks

101. Here is a pattern on a window.

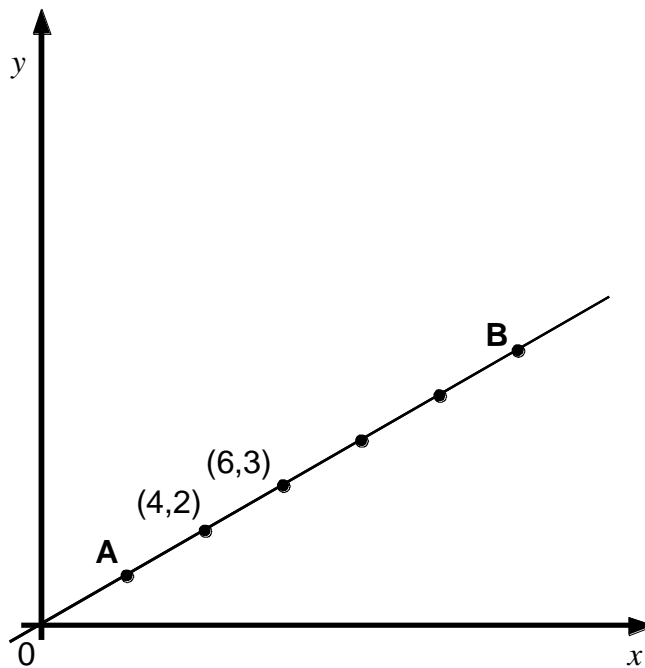


Draw how the pattern would look from the **other side** of the window.



2 marks

102. Here is a graph.



The dots (●) on the line are **equally spaced**.

What are the **coordinates** of the point **A**?

 (,)

1 mark

Megan says,

'The point B has coordinates (11,5).'

Use the graph to explain why she **cannot** be correct.



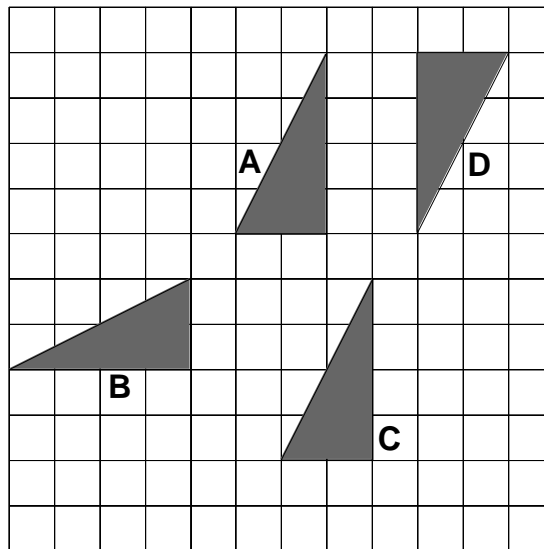
.....

.....

.....

1 mark

103.



Write the correct **letter** in this sentence.



Shape is a **reflection** of shape A.

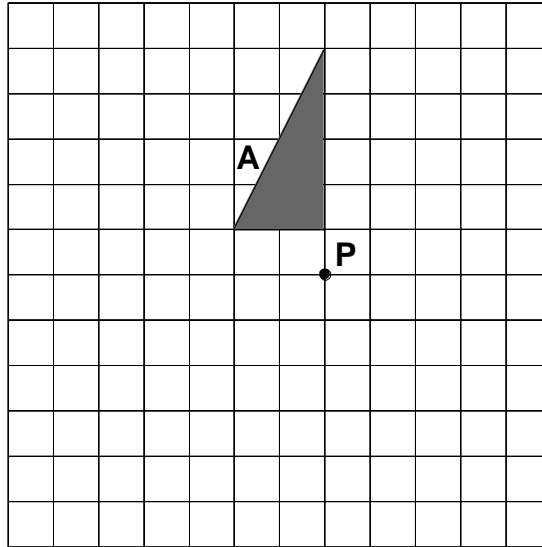
1 mark

Shape A is **rotated 180°** about the **point P**.

Draw **shape A** in its **new** position on the diagram below.

You may use tracing paper.

You may use an angle measurer.



2 marks