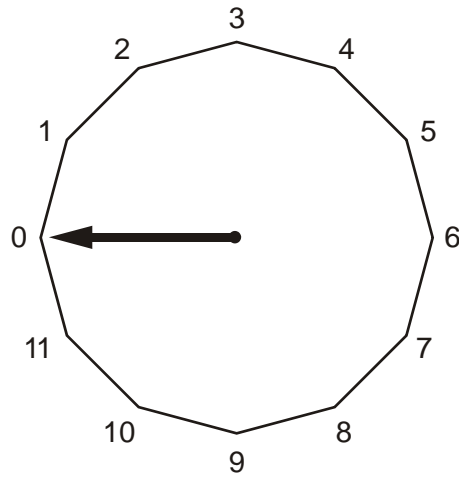


1. This regular 12-sided shape has a number at each vertex.



Ben turns the pointer from zero, clockwise through  $150^\circ$

Which number will the pointer now be at?



1 mark

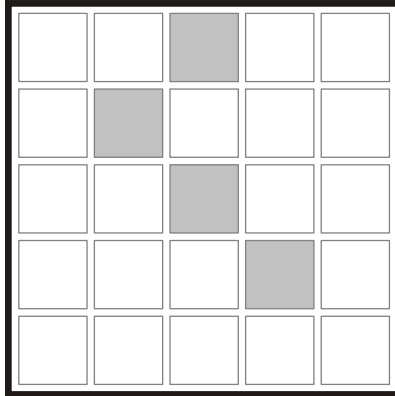
Nisha turns the pointer clockwise from number 2 to number 11

Through how many degrees does the pointer turn?



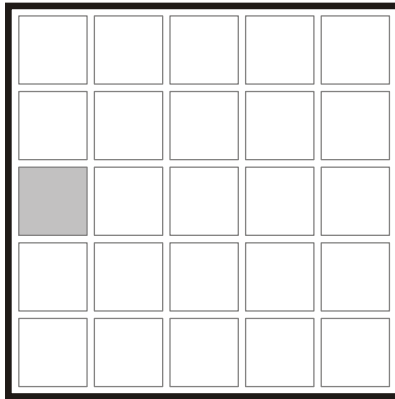
1 mark

2. Ben makes this design on a grid.



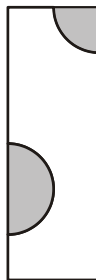
He rotates the grid to a new position.

Shade in the missing parts of the design.



1 mark

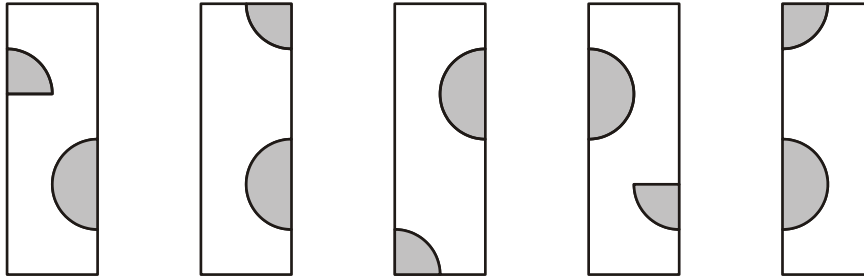
3. Here is a tile.



The tile is turned.

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

Tick (✓) the correct diagram.

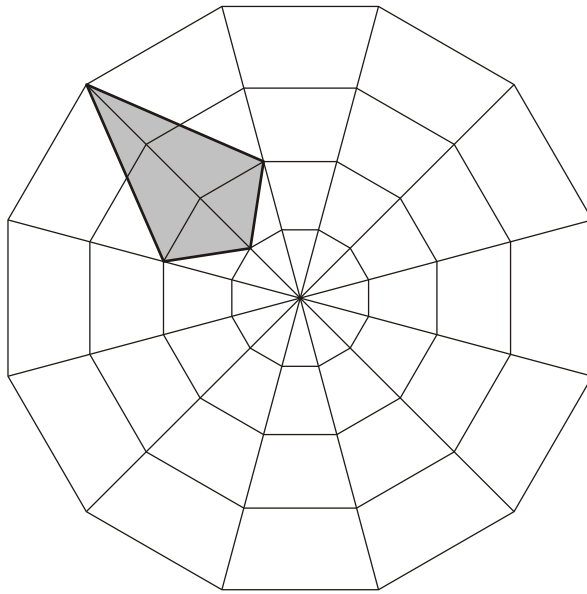


1 mark

4. Here is a shaded shape on a grid.

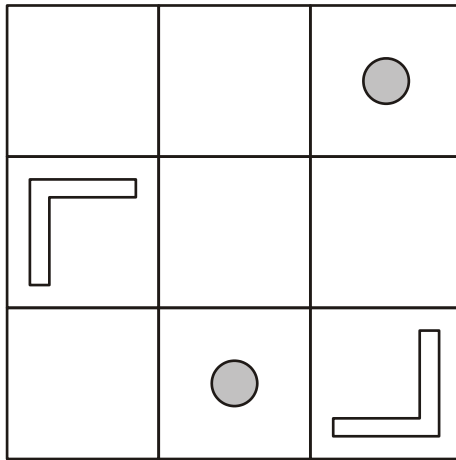
Jamie rotates the shape  $90^\circ$  **clockwise** about the centre of the grid.

Draw the shaded shape in its new position.



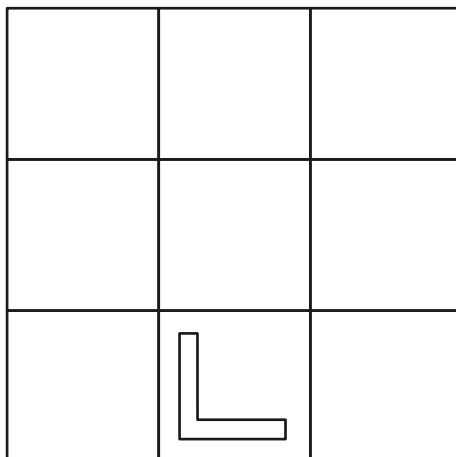
2 marks

5. There are four shapes on this diagram.



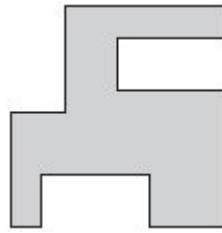
The diagram is turned to the new position below.

Draw the three missing shapes.

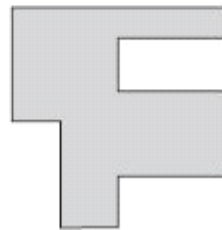
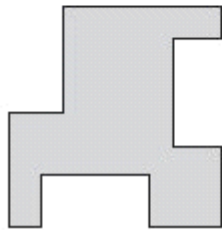
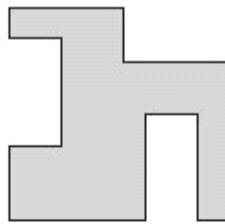
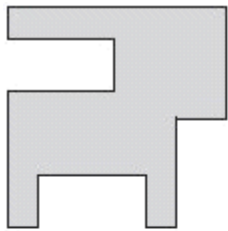


2 marks

6. Here is a shape.



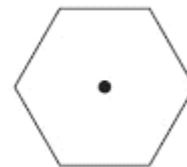
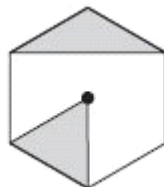
Put a tick (✓) on the shape below which is the same as the one above.



1 mark

7. This pattern is made by turning a shape clockwise through  $90^\circ$  each time.

Draw the two missing triangles on the last shape.



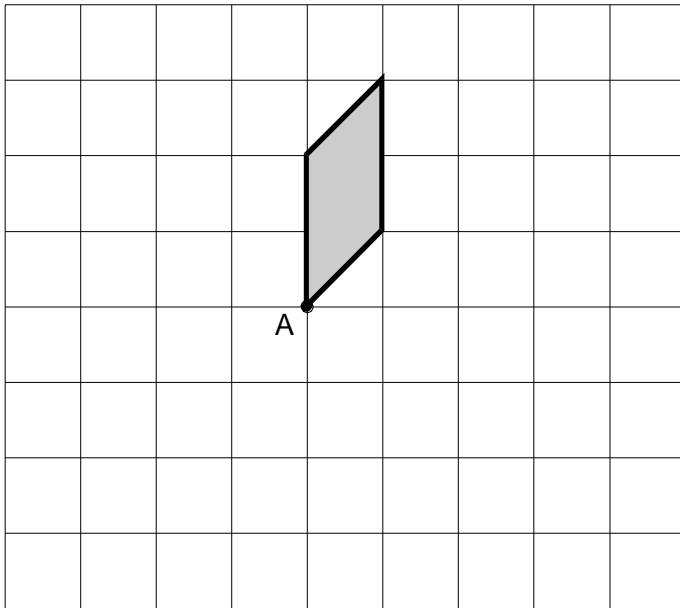
1 mark

8. 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.

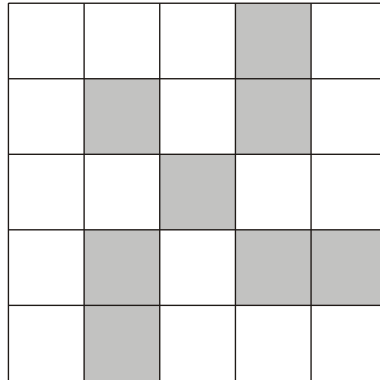
You may use tracing paper.



2 marks

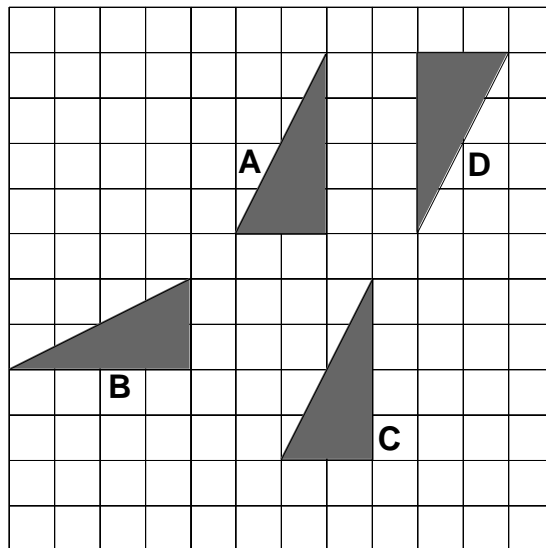
9. Shade in **one more** square so that this design has **rotational** symmetry of **order 4**.

You may use tracing paper



1 mark

10.



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



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

1 mark

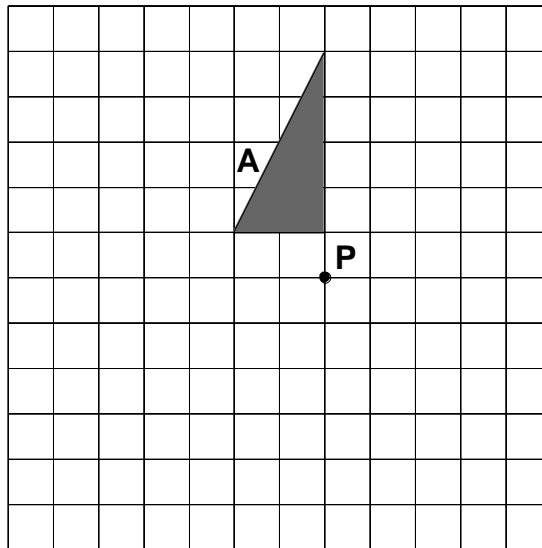


Shape A is **rotated 180°** about the **point P**.

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

You may use tracing paper.

You may use an angle measurer.



2 marks