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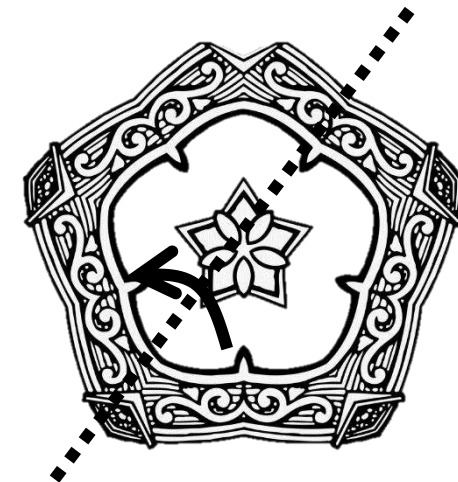
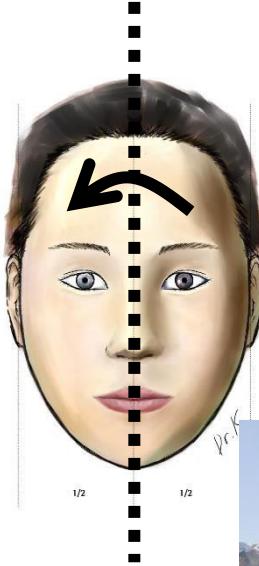
IGCSE Symmetry

Objectives: Be able to identify lines of symmetry.

Symmetry in everyday life

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Symmetry is when something can be seen alongside its 'mirror image'. Symmetry regularly occurs in nature, physics, architecture and art.

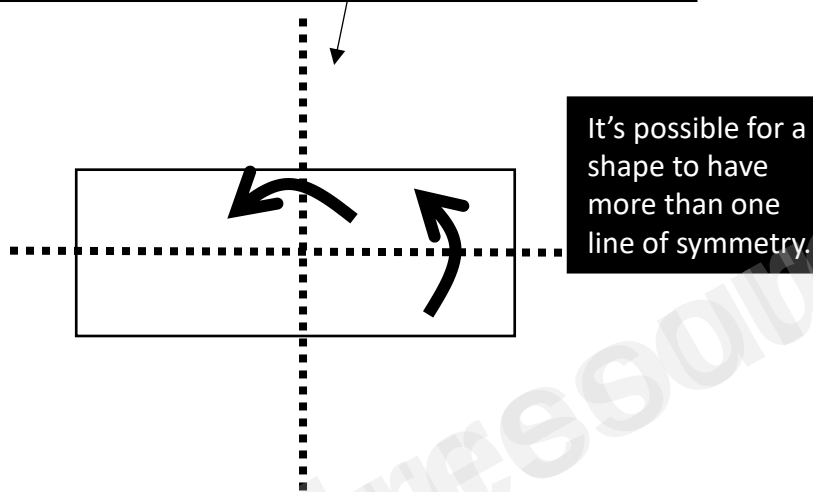


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Lines of symmetry

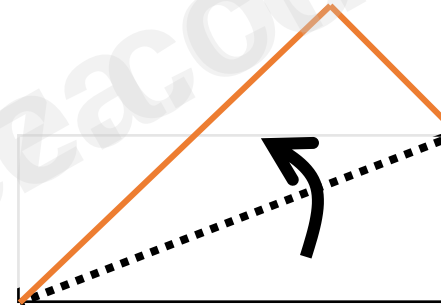
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The **line of symmetry** is the line in which the shape is copied to form its mirror image.



You can imagine the line of symmetry as placing a mirror there, and looking from one side! Would you see the same as the original shape?

Be careful: The diagonal of a rectangle is NOT a line of symmetry. Click the button to see why!



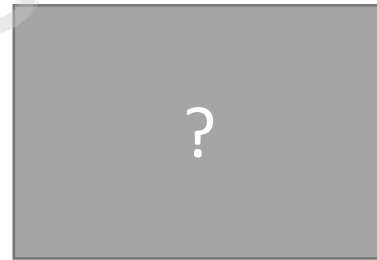
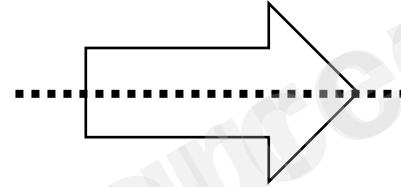
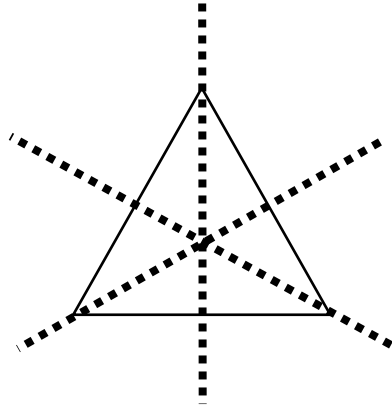
Click for
animation

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Examples

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How many lines of symmetry do each of the following shapes have?

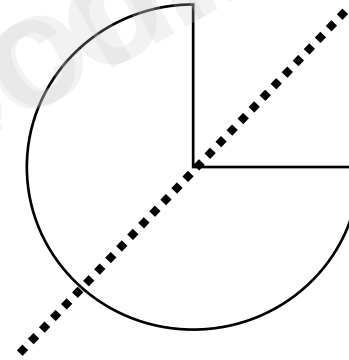
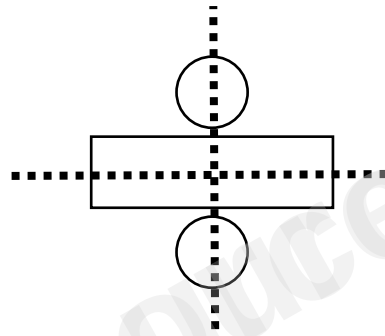
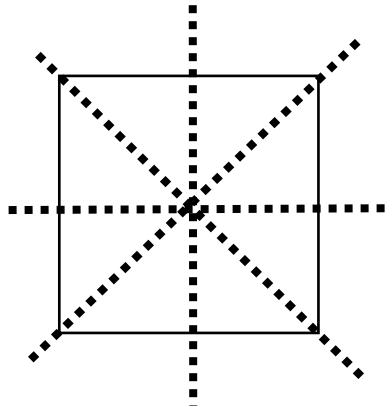


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Test Your Understanding

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How many lines of symmetry do each of the following shapes have?



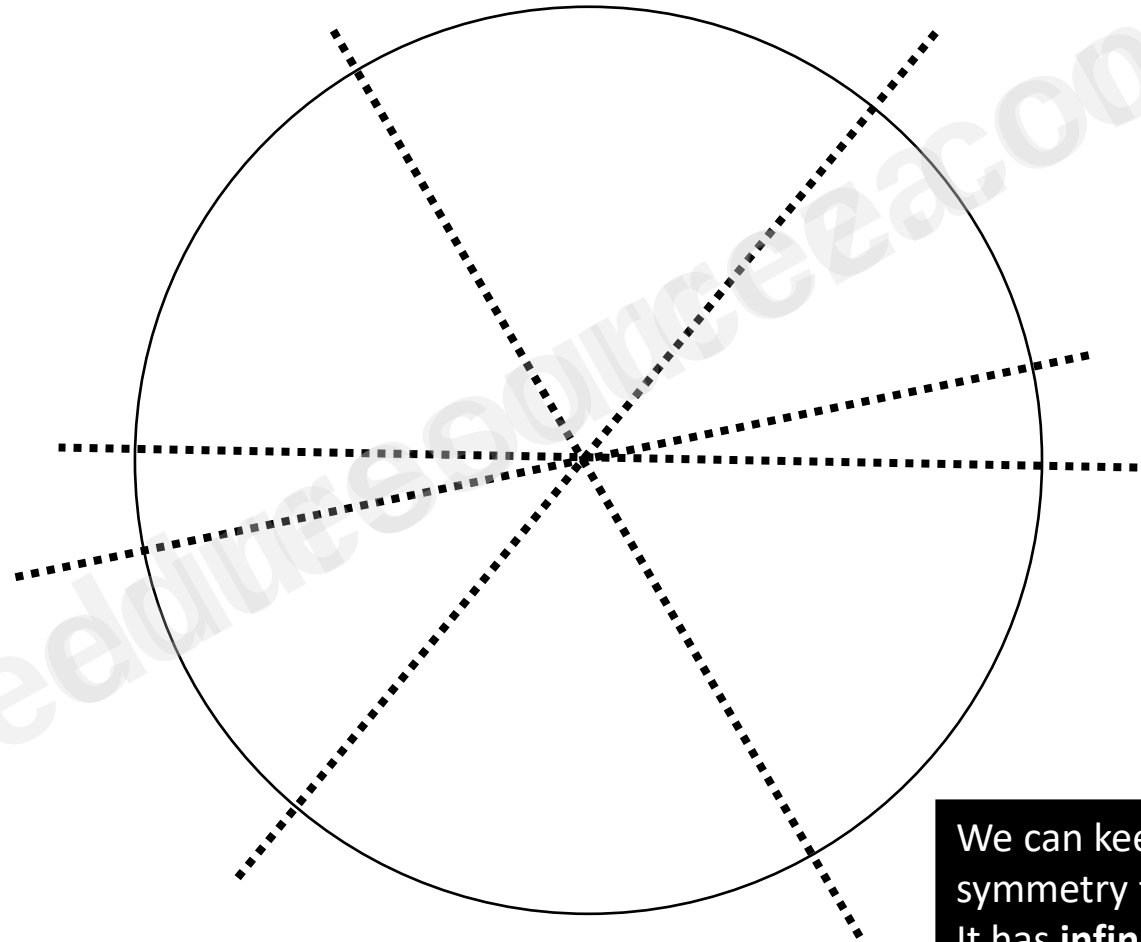
In general, a regular polygon with n sides will have n lines of symmetry, e.g. a regular pentagon has 5 sides, so it has 5 lines of symmetry.

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A challenging one...

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How many lines of symmetry does a circle have?



We can keep finding lines of symmetry forever...
It has **infinitely many** lines of symmetry!

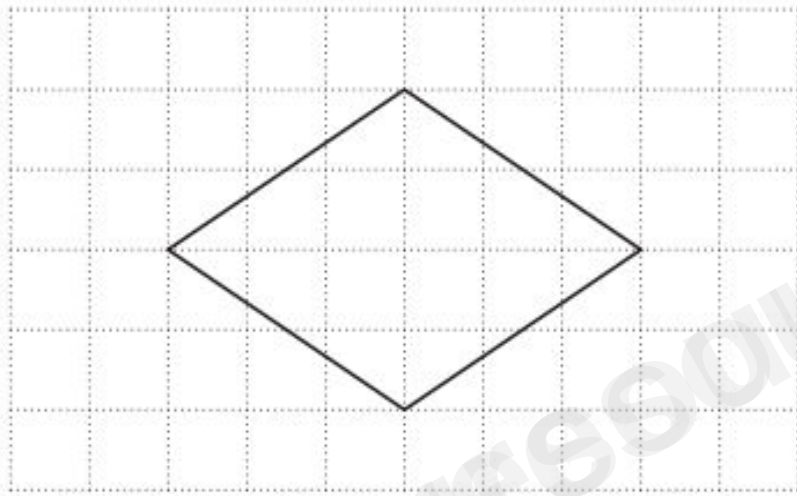
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Exercise

(on printed worksheet)

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1



[OCR GCSE(9-1) June 2018 2F Q5b]

A shape is drawn on a
one-centimetre grid.

How many lines of symmetry does the
shape have?

? Reveal

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Exercise

(on printed worksheet)

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2



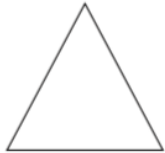
A



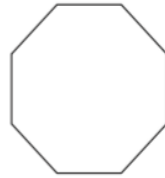
B



C



D



E



F



G

[Edexcel GCSE Nov2016-2F Q4b]

Here are seven shapes.

One of these shapes has no lines of symmetry.

Write down the letter of this shape.

? Reveal

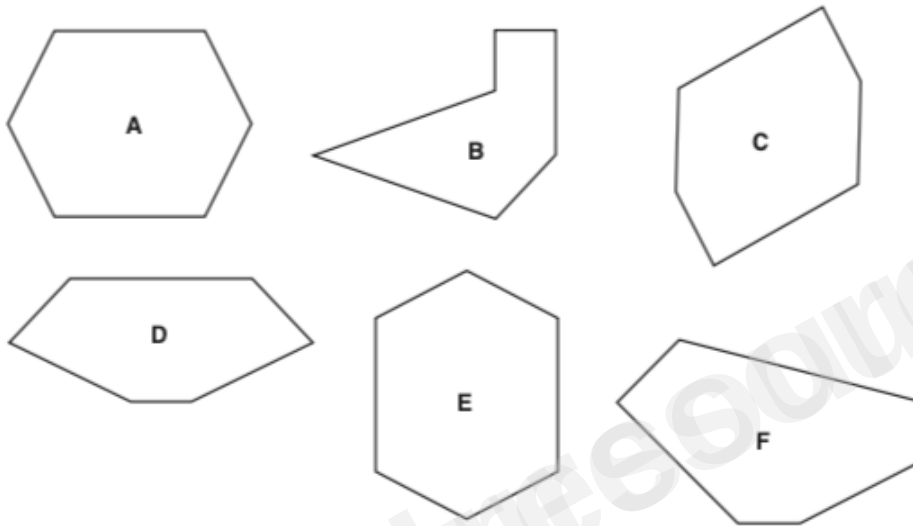
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Exercise

(on printed worksheet)

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3



[OCR GCSE Nov 2016 1F Q4a] Ewan has drawn these hexagons.

Which hexagon has **just one** line of symmetry?

? Reveal

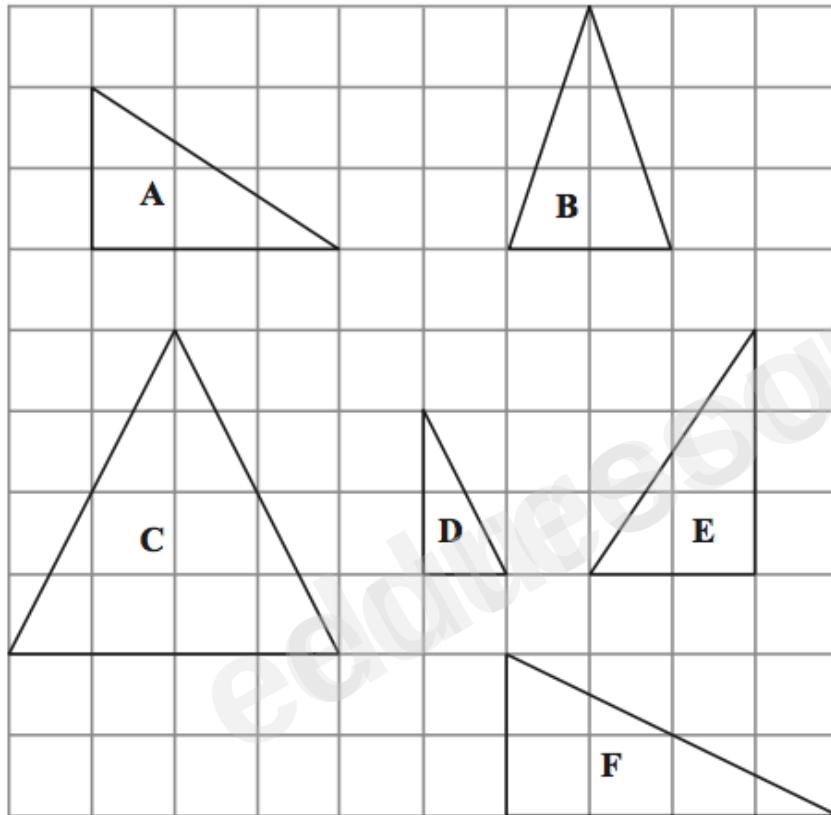
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Exercise

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4



[Edexcel GCSE Nov2011-1F Q10c]

Here are some triangles drawn on a square grid.

Two of the triangles each have one line of symmetry.

Write down the letters of these two triangles.

? Reveal

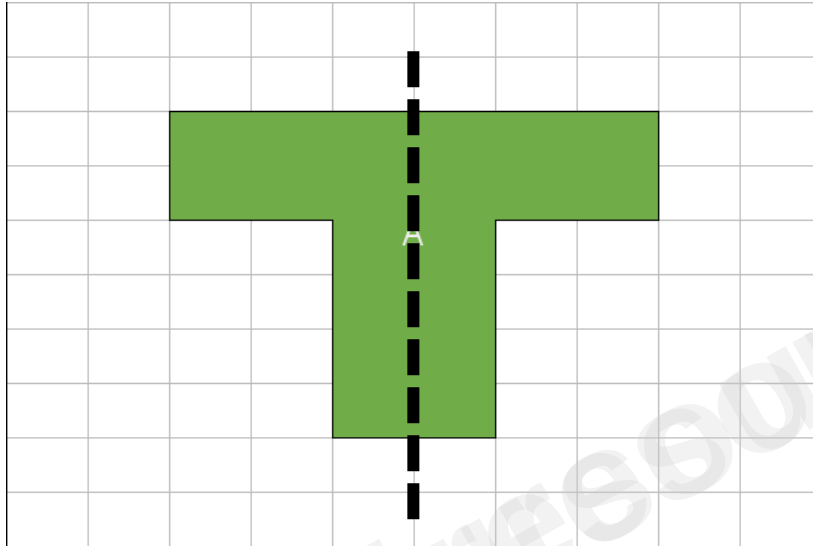
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Exercise

(on printed worksheet)

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5



[Edexcel GCSE Nov2007-2F Q8a Edited]
The shape below has one line of symmetry. On the grid, draw this line of symmetry.

? Reveal

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Exercise

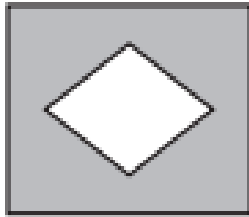
(on printed worksheet)

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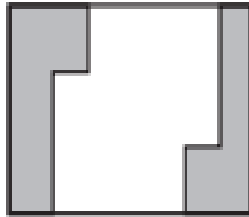
6

[AQA GCSE June 2014 2F Q4a] Here are five flags.

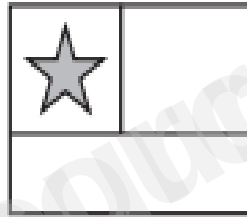
Which **three** flags have line symmetry?



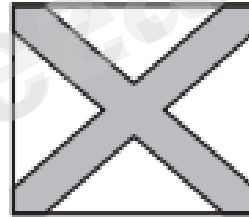
A



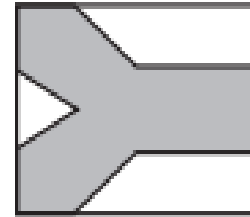
B



C



D



E

? Reveal

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Exercise

(on printed worksheet)

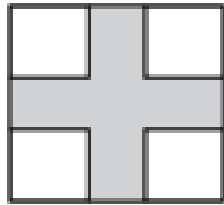
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7

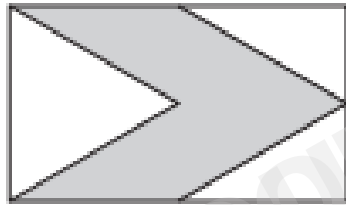
[AQA GCSE June 2012 2F Q11a]

Here are four diagrams.

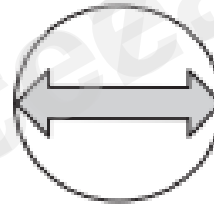
Which **two** diagrams have more than one line of symmetry?



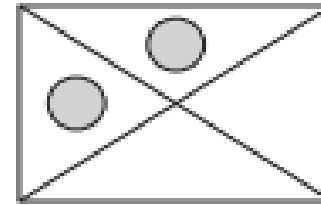
A



B



C



D

? Reveal

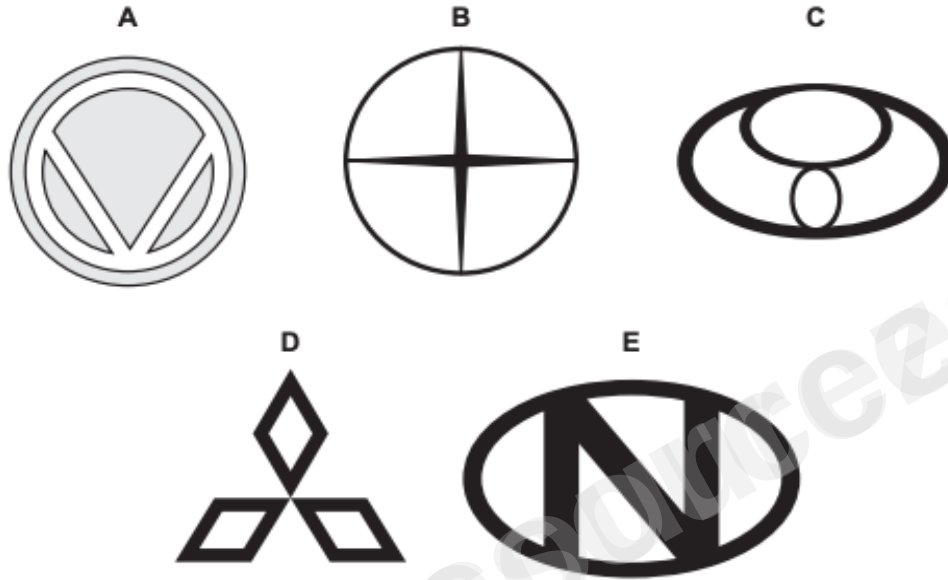
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Exercise

(on printed worksheet)

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8



[AQA GCSE June 2013 1F Q6a]

Here are five badges.

Which **two** of the badges have exactly **one** line of symmetry?

? Reveal

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9



A



B



C



D

[Edexcel GCSE June 2004 1F Q11a]

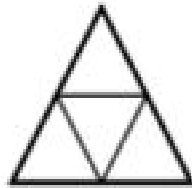
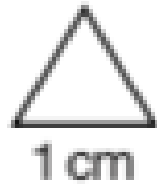
Here are four road signs.

Two of these road signs have one line of symmetry.

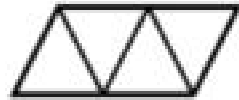
Select the letters of each of these **two** road signs.

? Reveal

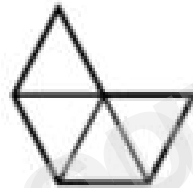
10



Shape A



Shape B



Shape C

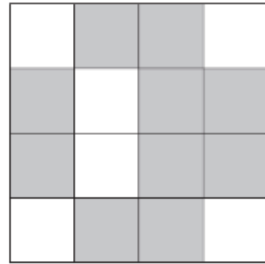
[OCR GCSE June 2013 1F Q6ai]

Harry is finding different ways that he can arrange four equilateral triangles edge to edge. The triangles all have a side of length 1 cm.

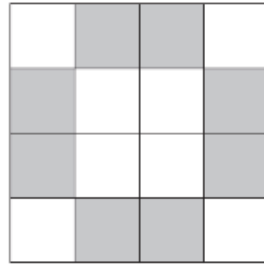
He makes three different shapes. How many lines of symmetry does each shape have?

? Reveal

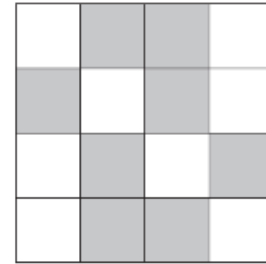
11



A



B



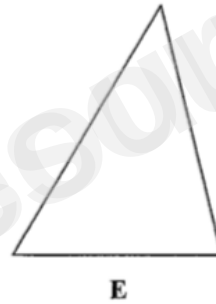
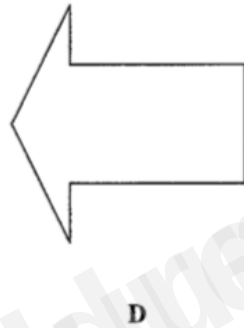
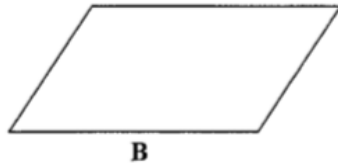
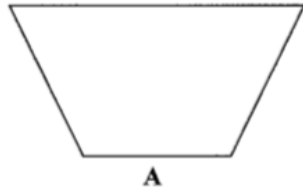
C

[Edexcel GCSE June 2013-1F Q21a]

The diagrams show patterns made from grey tiles and white tiles.
One of the patterns has exactly 1 line of symmetry.
Write down the letter of this pattern.

? Reveal

12



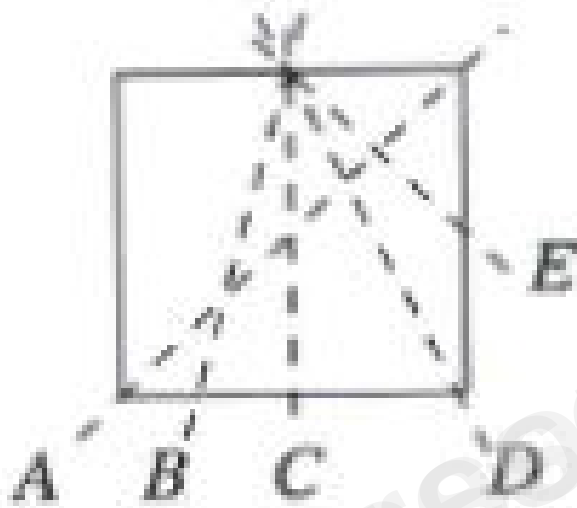
[Edexcel GCSE June2006-2F Q13a Edited]

Here are 5 shapes.

Two of these shapes have only one line of symmetry. Select the letters of these two shapes.

? Reveal

13



[JMC 1998 Q12] Along which line should an upright mirror be placed so that the part of the square on one side of the mirror and its reflection form an octagon?

? Reveal

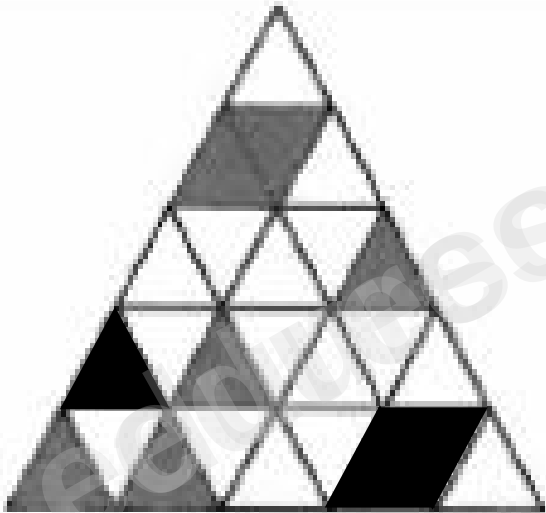
Exercise

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[IMC 2002 Q4] The figure shows an equilateral triangle divided into small equilateral triangles, all equal. What is the lowest number of small triangles which must now be shaded to produce a figure which has a line of symmetry?



? Reveal

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