



# MATHS

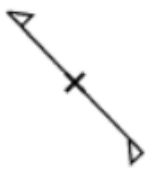
## NCERT - NCERT

### Mathematics(HINGLISH)

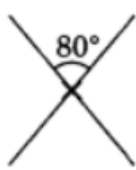
## SYMMETRY

### Exercise 14 2

1. Give the order of rotational symmetry for each figure:



(a)



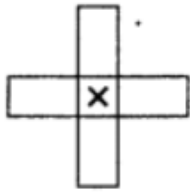
(b)



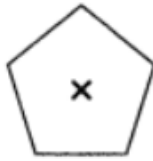
(c)



(d)



(e)



(f)



(g)



(h)



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2. Which of the following figures have rotational symmetry of order more than 1:



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## Exercise 14 3

1. If a figure has two or more lines of symmetry, should it have rotational symmetry of order more than 1?



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2. Draw, wherever possible, a rough sketch of:

(i) a triangle with both line and rotational symmetries of order more than 1.

(ii) a triangle with only line symmetry and no

rotational symmetry of order more than 1.

(iii) a quadrilateral with a rotational symmetry of order more than 1 but not a line symmetry.

(iv) a quadrilateral with line symmetry but not a rotational symmetry of order more than 1.



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3. Name any two figures that have both line symmetry and rotational symmetry.



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4. Can we have a rotational symmetry of order more than 1 whose angle of rotation is

(i)  $45^\circ$  (ii)  $17^\circ$



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5. After rotating by  $60^\circ$  about a centre, a figure looks exactly the same as its original position.

At what other angles will this happen for the figure?



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## 6. Fill in the blanks:

Shape	Centre of Rotation	Order of Rotation	Angle of Rotation
Square			
Rectangle			
Rhombus			
Equilateral Triangle			
Regular Hexagon			
Circle			
Semi-circle			



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7. Name the quadrilaterals which have both line and rotational symmetry of order more than 1.



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## Exercise 14 1

1. What other name can you give to the line of symmetry of (a) an isosceles triangle? (b) a circle?



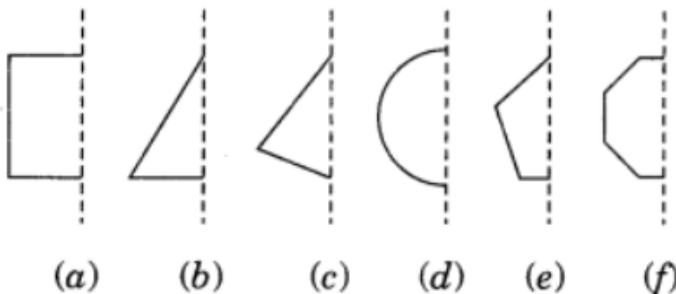
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2. Copy the figures with punched holes and find the axes of symmetry for the following:





3. In the following figures, the mirror line (i.e., the line of symmetry) is given as a dotted line. Complete each figure performing reflection in the dotted (mirror) line. (You might perhaps place a mirror along the dotted line and look into the mirror for the image). Are you able to recall the name of the figure you complete?







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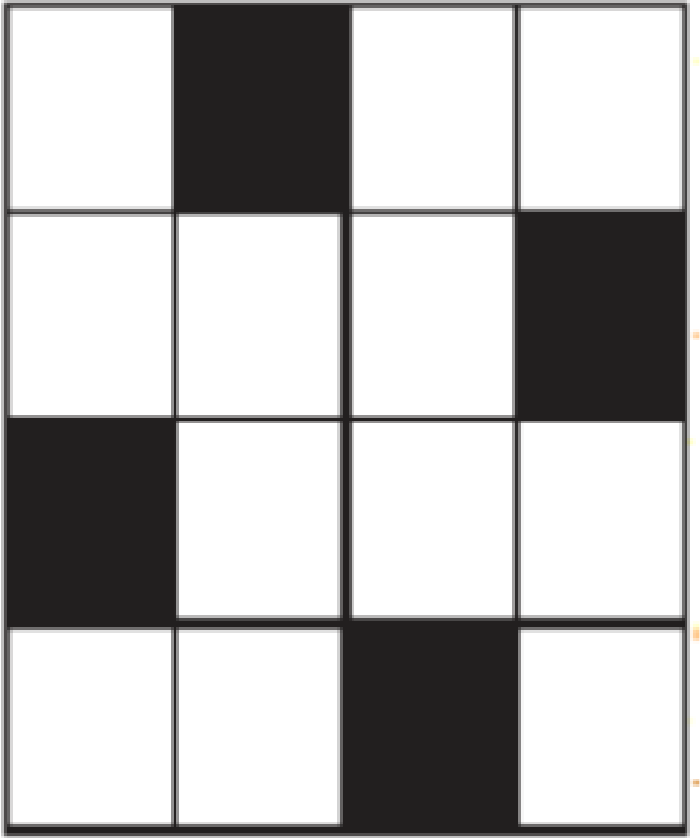
4. Given the line(s) of symmetry, find the other hole(s):




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5. Copy the figure given here. Take any one diagonal as a line of symmetry and shade a few more squares to make the figure symmetric about a diagonal. Is there more

than one way to do that? Will the figure be symmetric about both the diagonals?



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6. The following figures have more than one line of symmetry. Such figures are said to have multiple lines of symmetry. :

Identify multiple lines of symmetry, if any, in each of the following figures



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7. Copy the diagram and complete each shape to be symmetric about the mirror line(s):



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8. Give three examples of shapes with no line of symmetry.



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9. What letters of the English alphabet have reflectional symmetry (i.e., symmetry related to mirror reflection) about (a) a vertical mirror (b) a horizontal mirror (c) both horizontal and vertical mirrors



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