Exercise 14.1

Question 1:

Copy the figures with punched holes and find the axes of symmetry for the following:
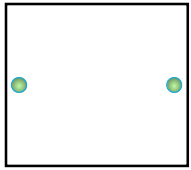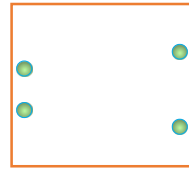
(a) (b) (c) (d)
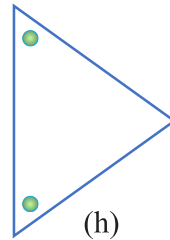
(e) (f) (g) (h)
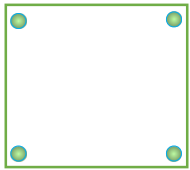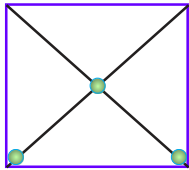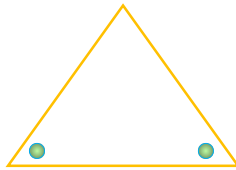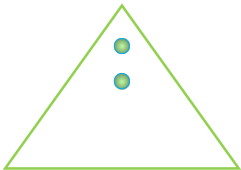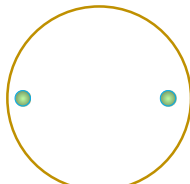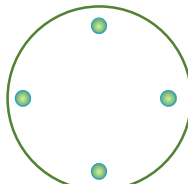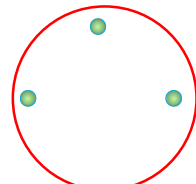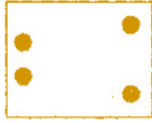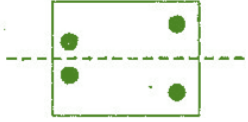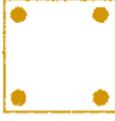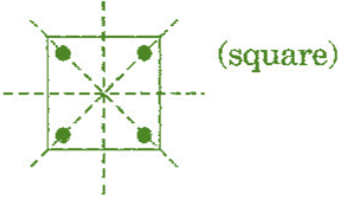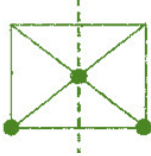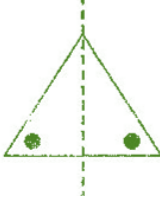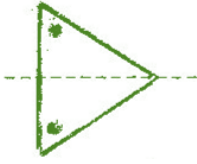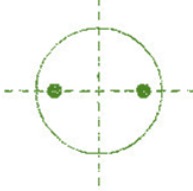
(i) (j) (k) (l)

Answer 1:

S.No.	Punched holed figures	The axes of symmetry
(a)		(rectangle)
(b)		(square)

(c)		
(d)		
(e)		(square)
(f)		
(g)		
(h)		
(i)		
(j)		

(k)		
(l)		

Question 2:

Express the following in exponential form:
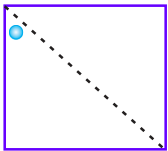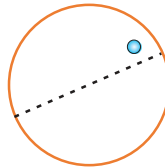
| (a) | (b) | (c) | (d) | (e) |

Answer 2:

S.No.	Line(s) of symmetry	Other holes on figures
(a)		
(b)		
(c)		
(d)		

(e)		

Question 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?
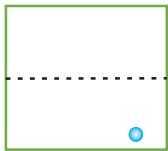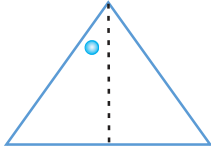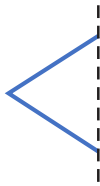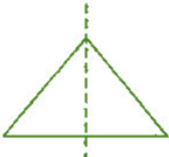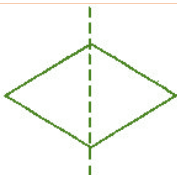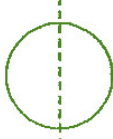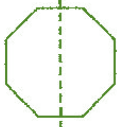

(a)   (b)   (c)   (d)   (e)   (f)

Answer 3:

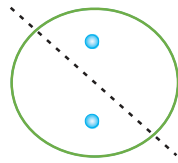| S.No.	Question figures	Complete figures	Names of the figure
(a)			Square
(b)			Triangle
(c)			Rhombus
(d)			Circle

(e)			Pentagon
(f)			Octagon

Question 4:

The following figures have more than one line of symmetry. Such figures are said to have multiple lines of symmetry:
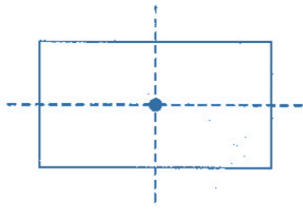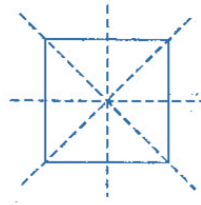
(a)   (b)   (c)

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

(a)   (b)   (c)   (d)
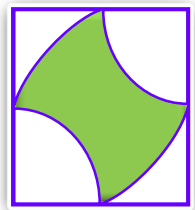
(e)   (f)   (g)   (h)
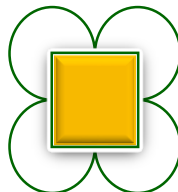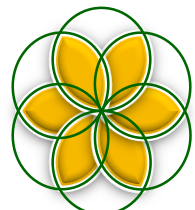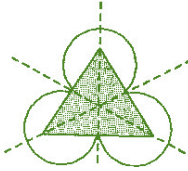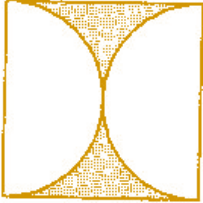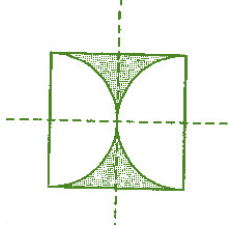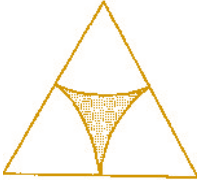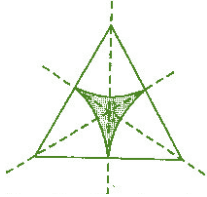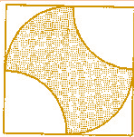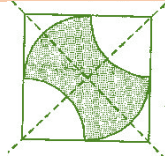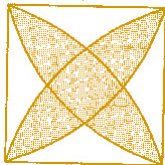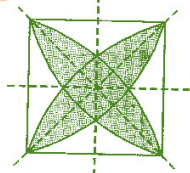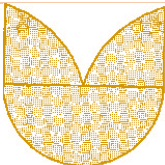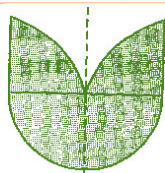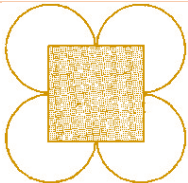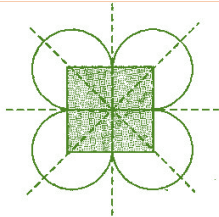
Answer 4:

S.No.	Problem Figures	Lines of symmetry
(a)		
(b)		
(c)		
(d)		
(e)		
(f)		
(g)		

| (h) | | |
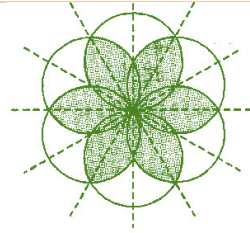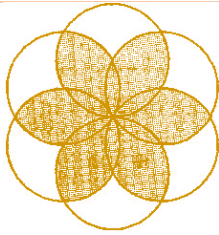
Question 5:

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?
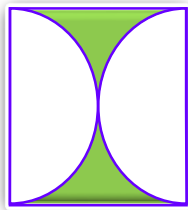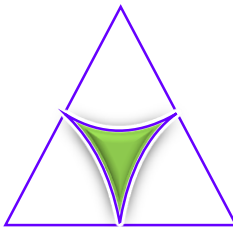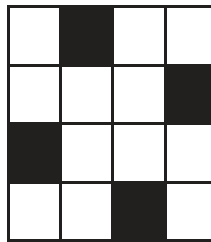

Answer 5:

Answer figures are:
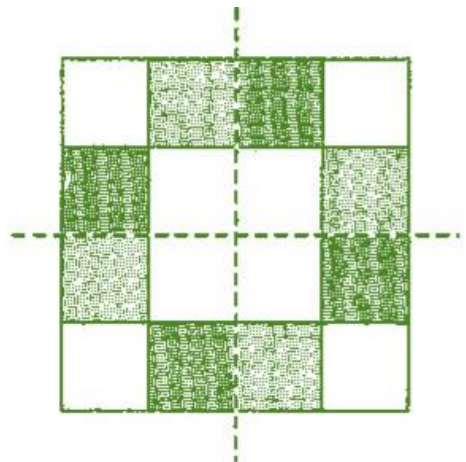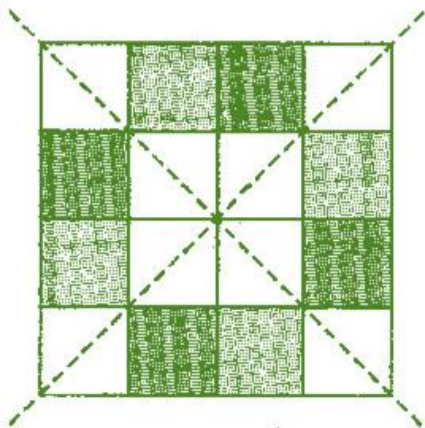
Yes, there is more than one way.

Yes, this figure will be symmetric about both the diagonals.

Question 6:

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

(a)   (b)   (c)   (d)

Answer 6:

(a)   *(b)*

(c)   *(d)*
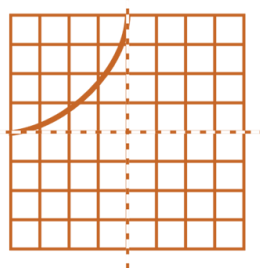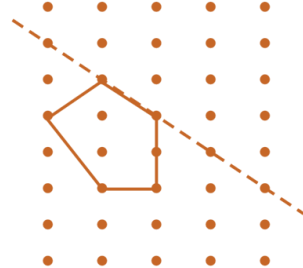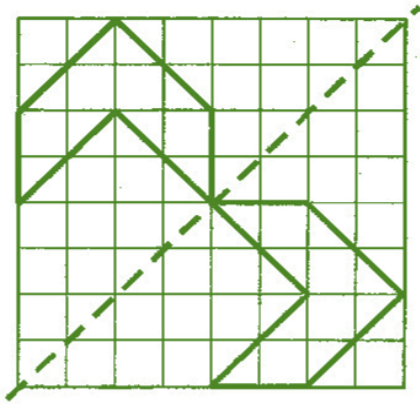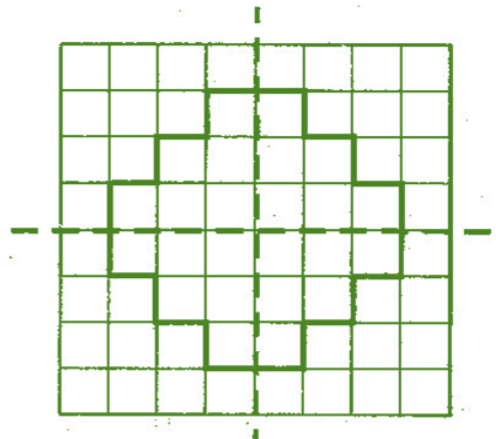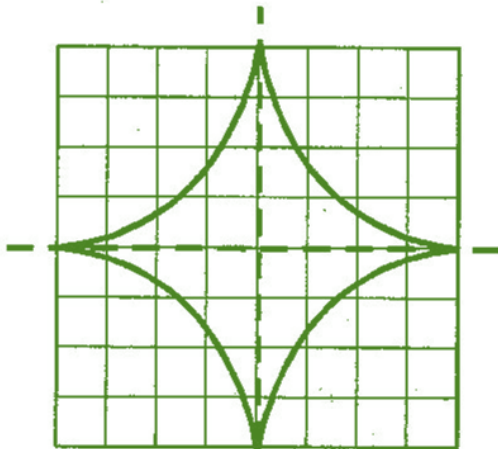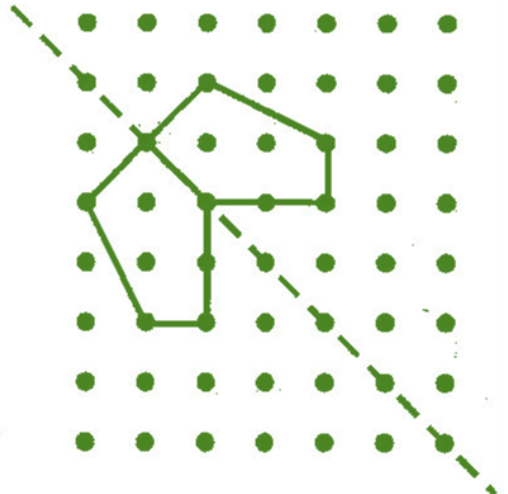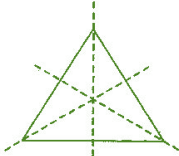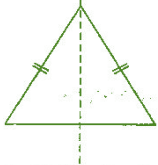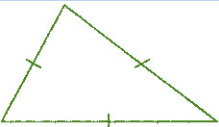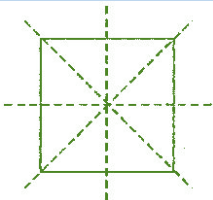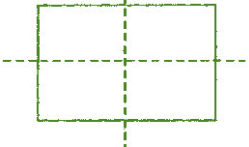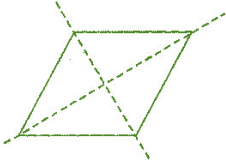
Question 7:

State the number of lines of symmetry for the following figures:
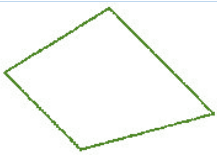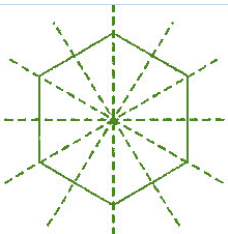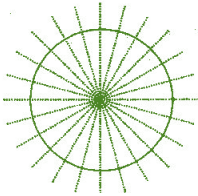
      (a) An equilateral triangle   (b) An isosceles triangle   (c) A scalene triangle
      (d) A square   (e) A rectangle   (f) A rhombus
      (g) A parallelogram   (h) A quadrilateral   (i) A regular hexagon
      (j) A circle

Answer 7:

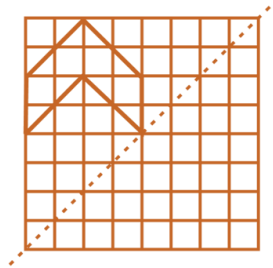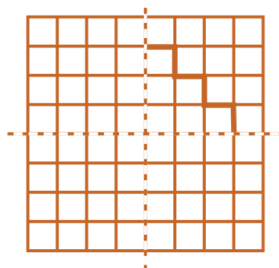| S.No.	Figure's name	Diagram with symmetry	Number of lines
(a)	Equilateral triangle		3
(b)	Isosceles triangle		1
(c)	Scalene triangle		0
(d)	Square		4
(e)	Rectangle		2
(f)	Rhombus		2
(g)	Parallelogram		0

(h)	Quadrilateral		0
(i)	Regular Hexagon		6
(j)	Circle		Infinite

Question 8:

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

Answer 8:

    (a) Vertical mirror – A, H, I, M, O, T, U, V, W, X and Y

    (b) Horizontal mirror – B, C, D, E, H, I, O and X

    (c) Both horizontal and vertical mirror – H, I, O and X

Question 9:

Give three examples of shapes with no line of symmetry.

Answer 9:

The three examples are:
- ➢ Quadrilateral
- ➢ Scalene triangle
- ➢ Parallelogram

Question 10:

What other name can you give to the line of symmetry of:

(a) an isosceles triangle?

(b) a circle?

Answer 10:

(a) The line of symmetry of an isosceles triangle is median or altitude.

(b) The line of symmetry of a circle is diameter.