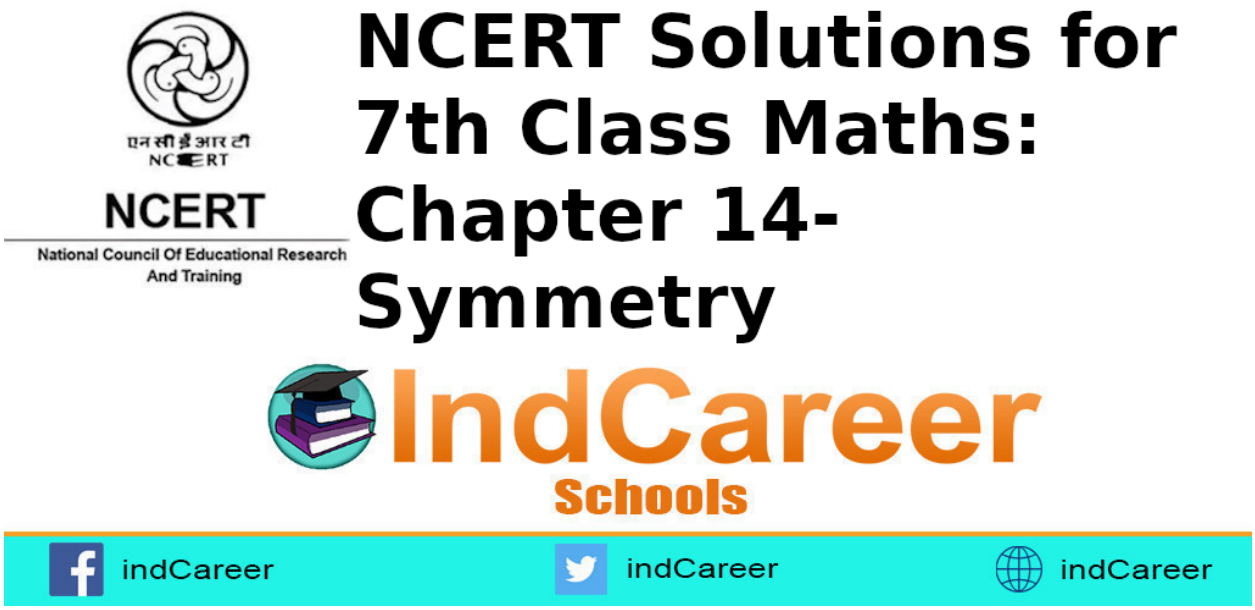


NCERT Solutions for 7th Class Maths: Chapter 14-Symmetry

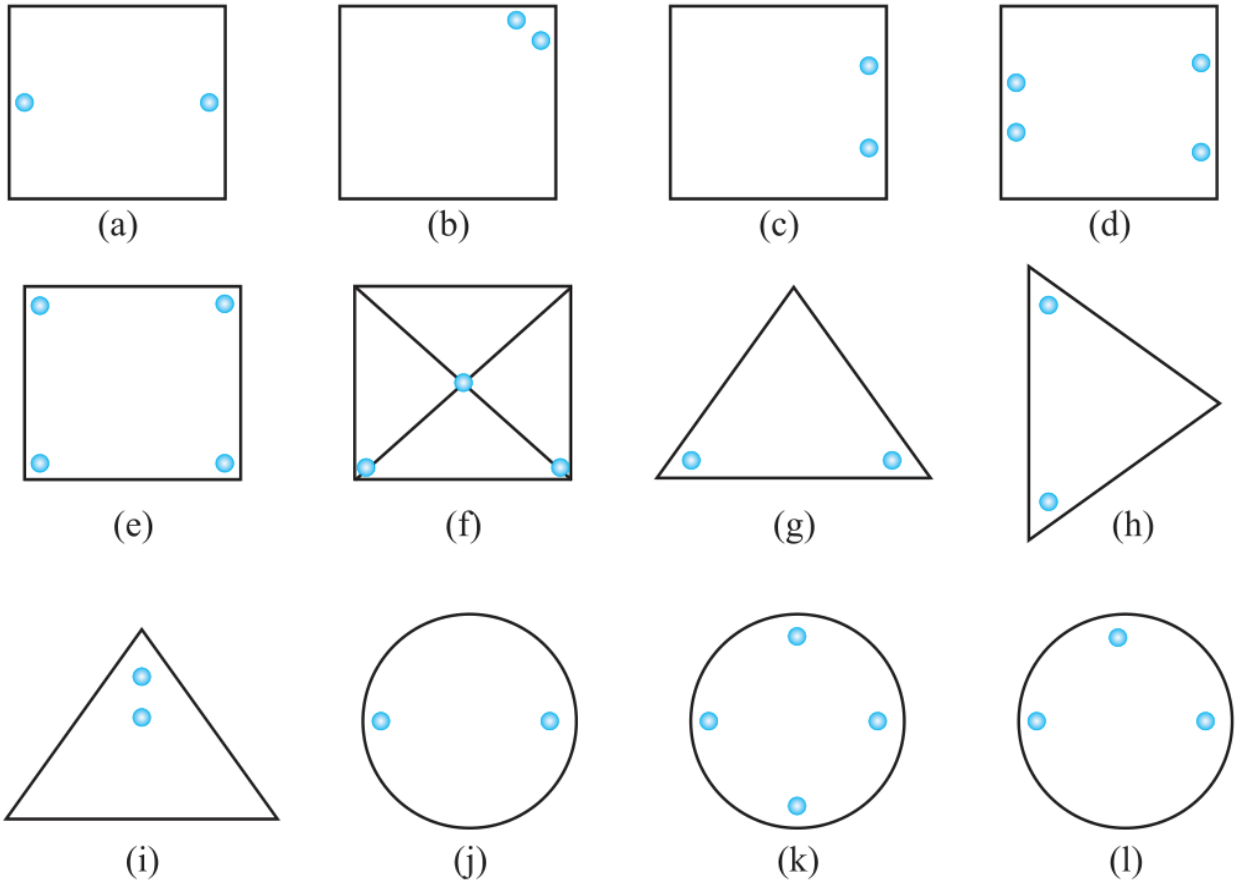
Class 7: Maths Chapter 14 solutions. Complete Class 7 Maths Chapter 14 Notes.

NCERT Solutions for 7th Class Maths: Chapter 14-Symmetry

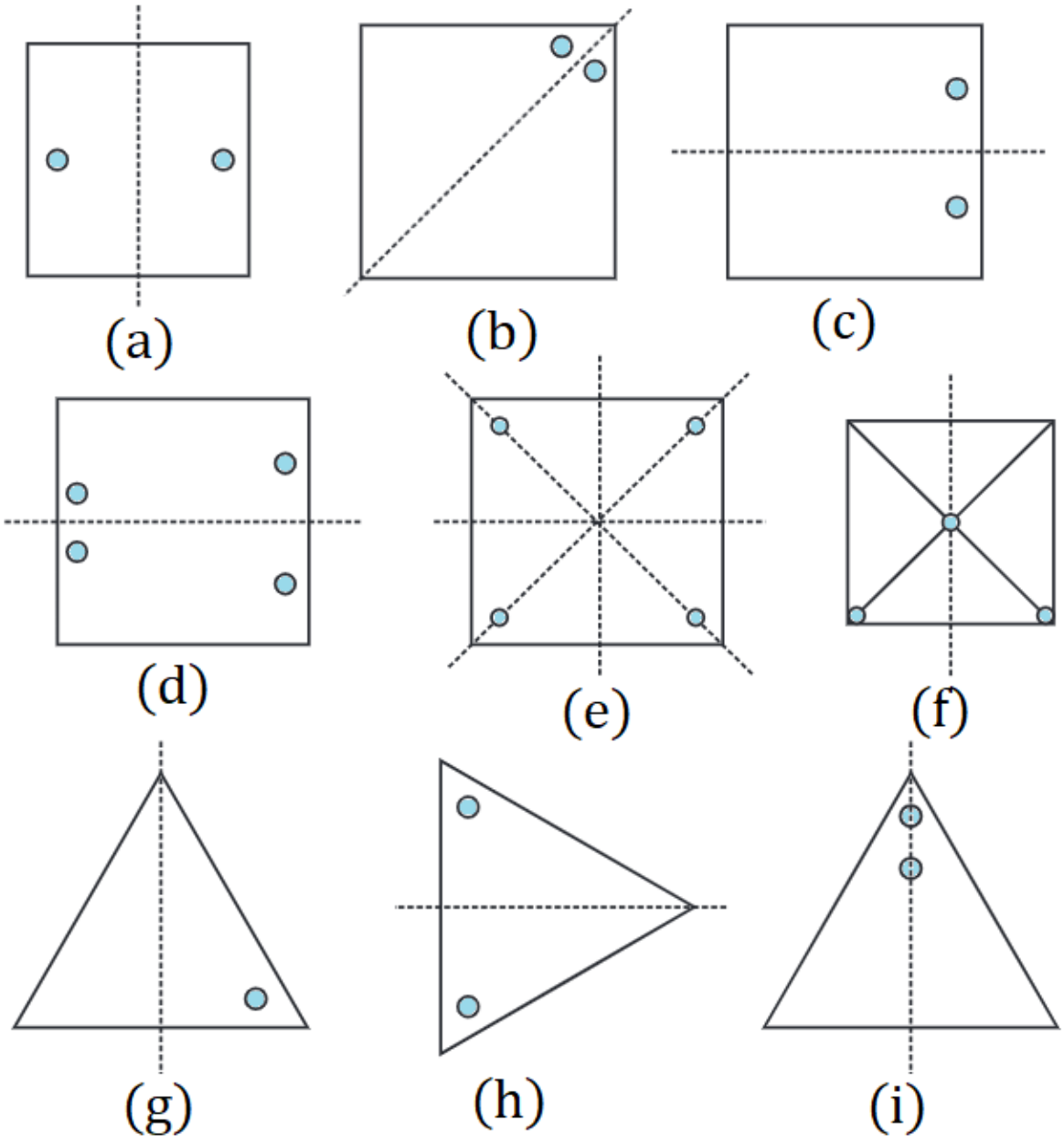
NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

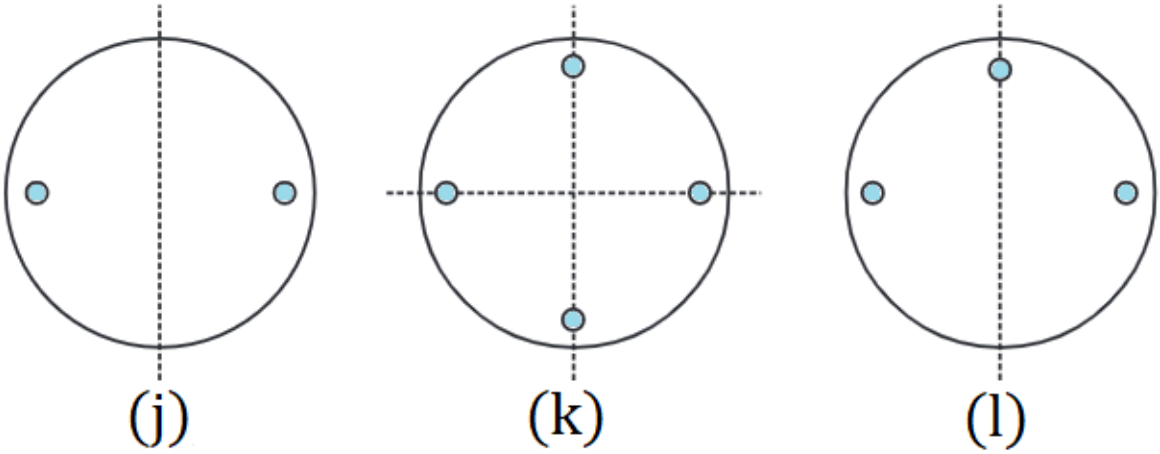
Exercise 14.1

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

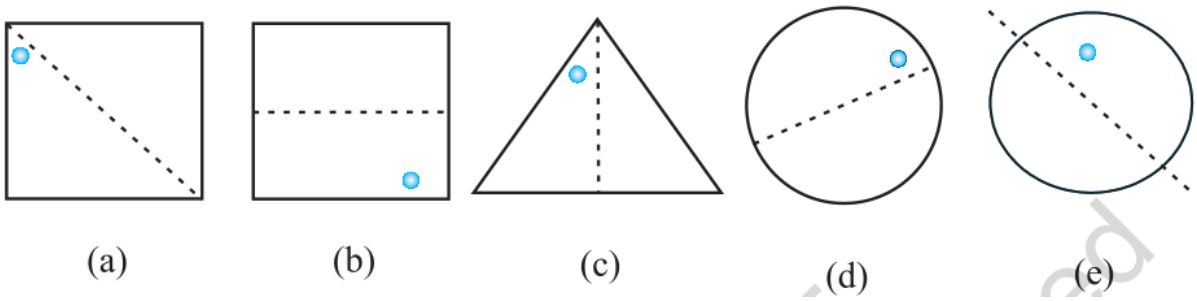


Answer

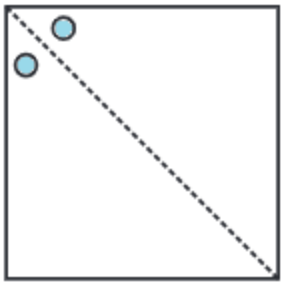

(a)
(b)
(c)
(d)
(e)
(f)
(g)
(h)
(i)



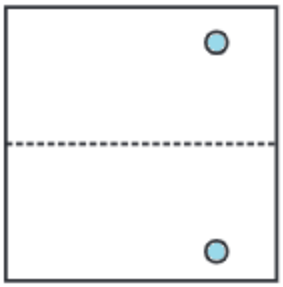
2. Given the line(s) of symmetry, find the other hole(s):



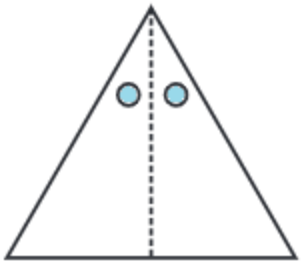
Answer



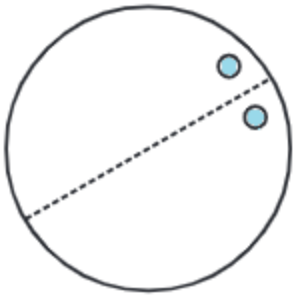
(a)



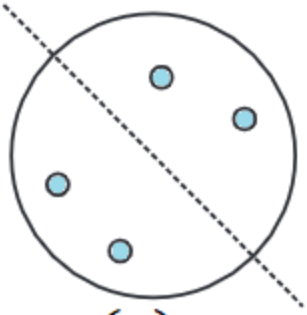
(b)



(c)

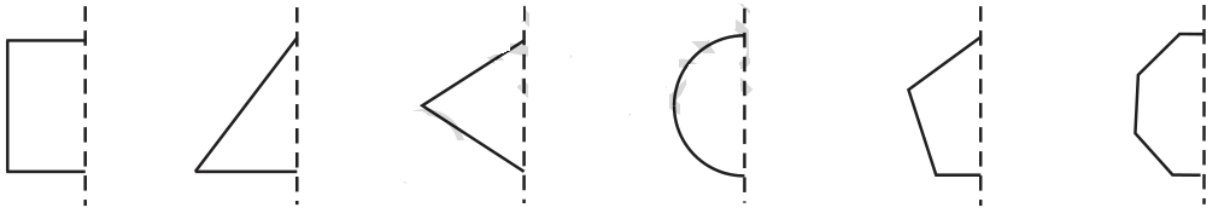


(d)



(e)

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

(a) Square

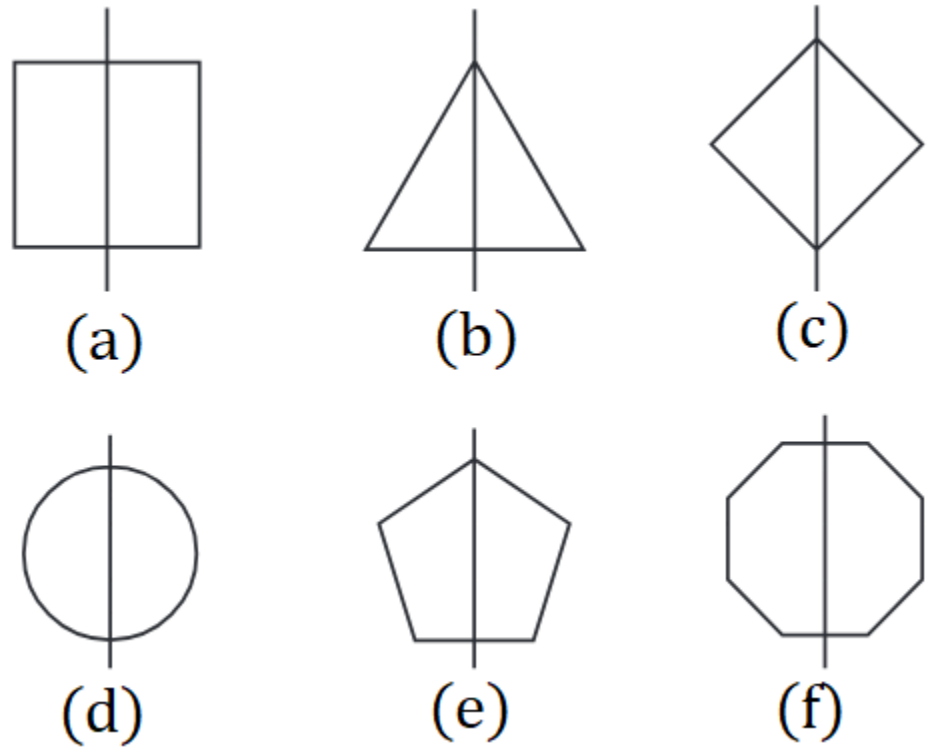
(b) Triangle

(c) Rhombus

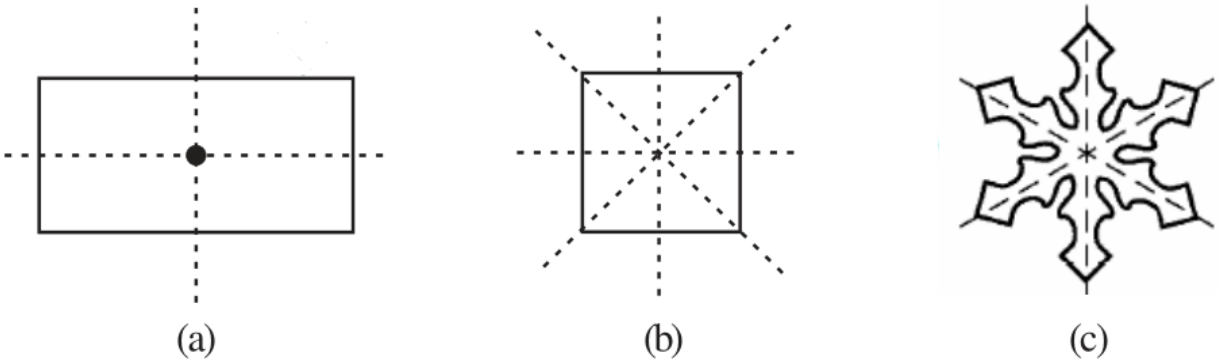
(d) Circle

(e) Pentagon

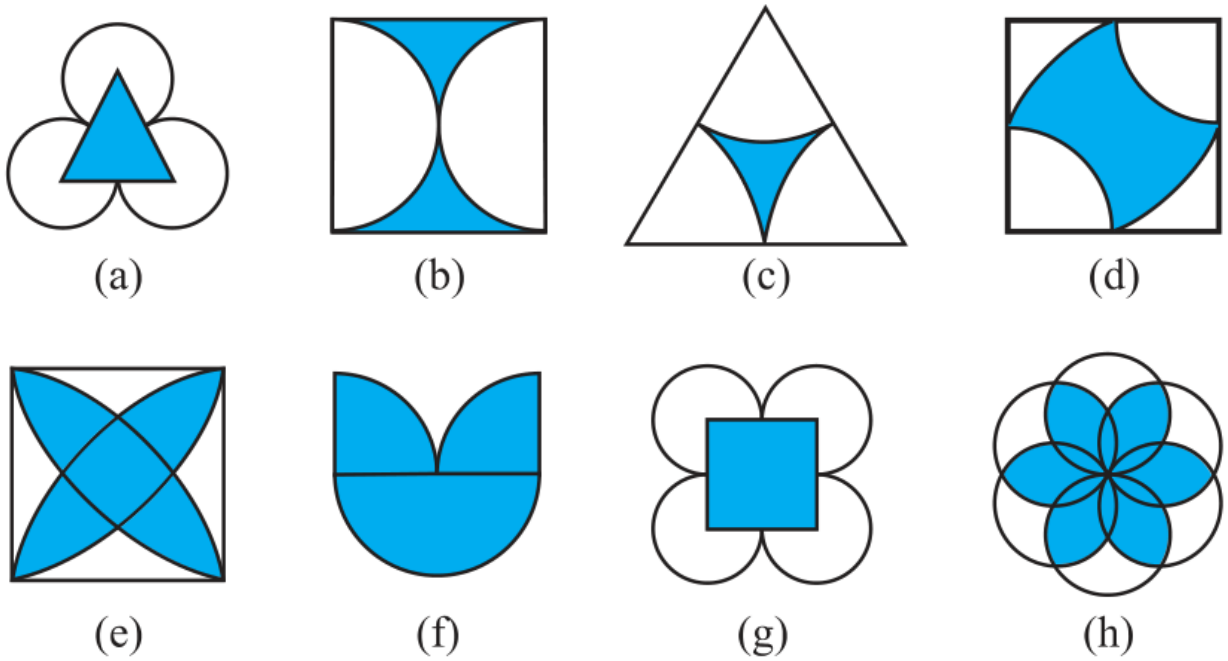
(f) Hexagon



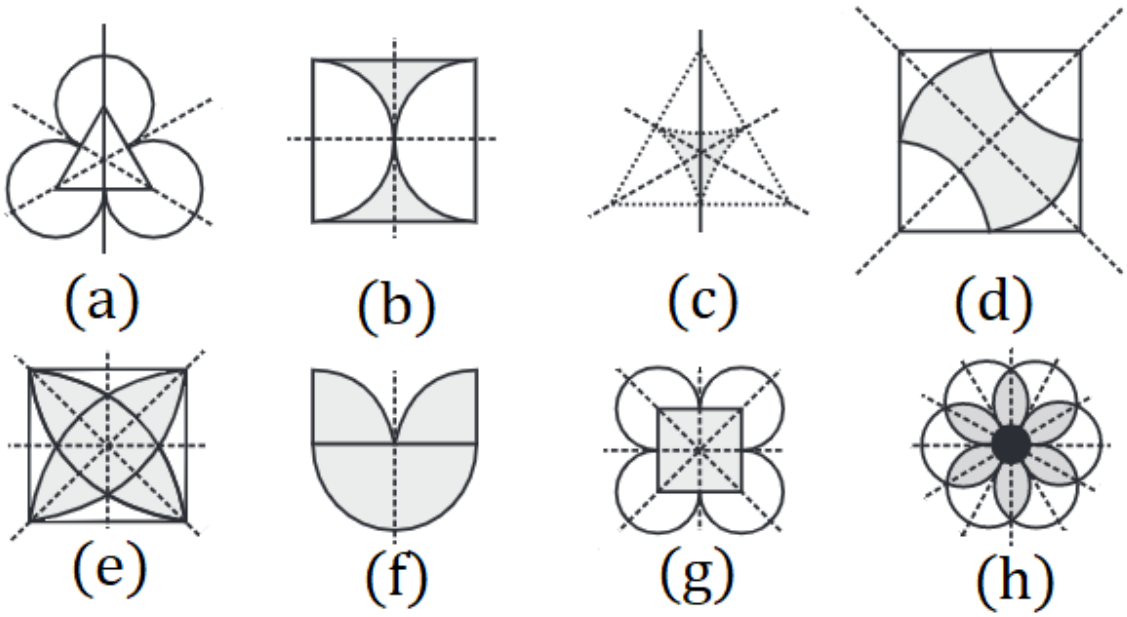
4. The following figures have more than one line of symmetry. Such figures are said to have multiple lines of symmetry.



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

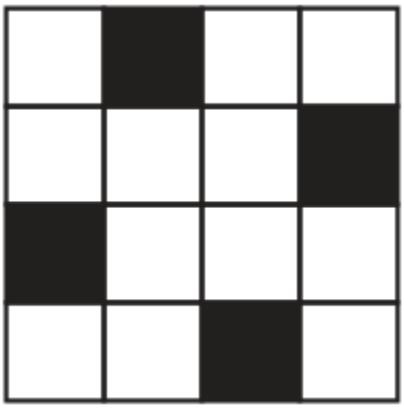


Answer

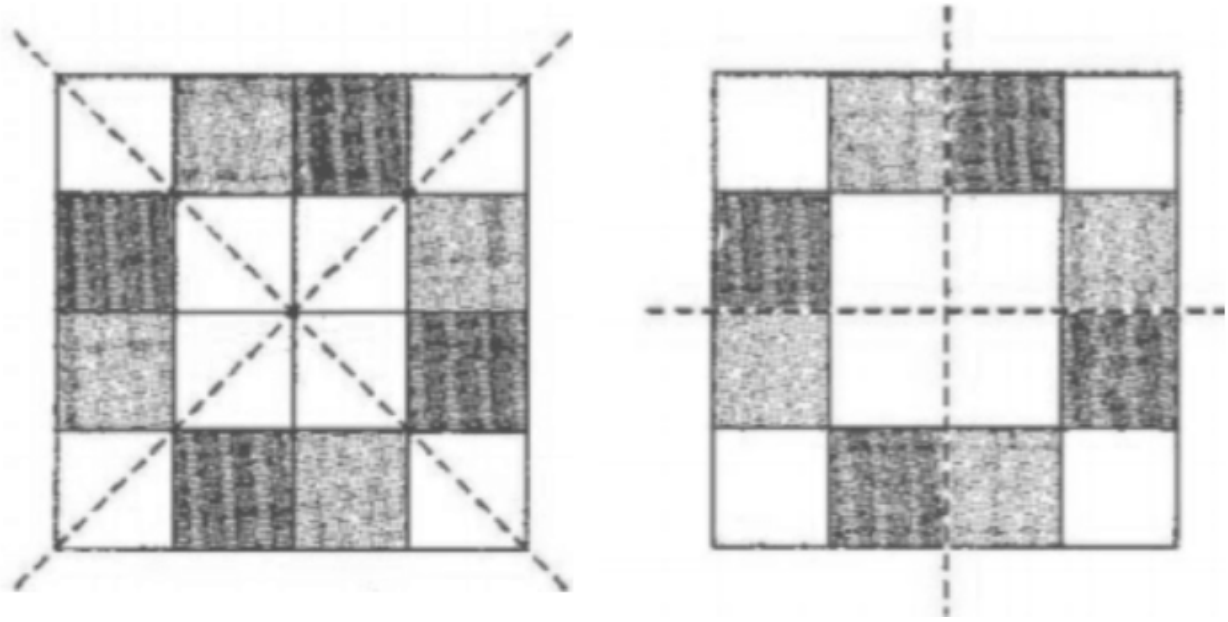


5. Copy the figure given here.

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?

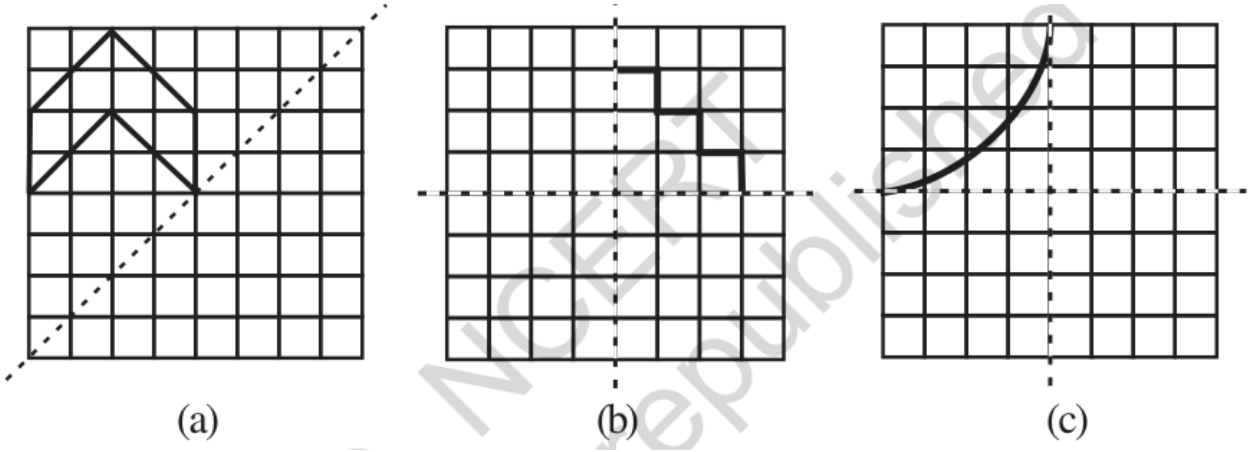


Answer

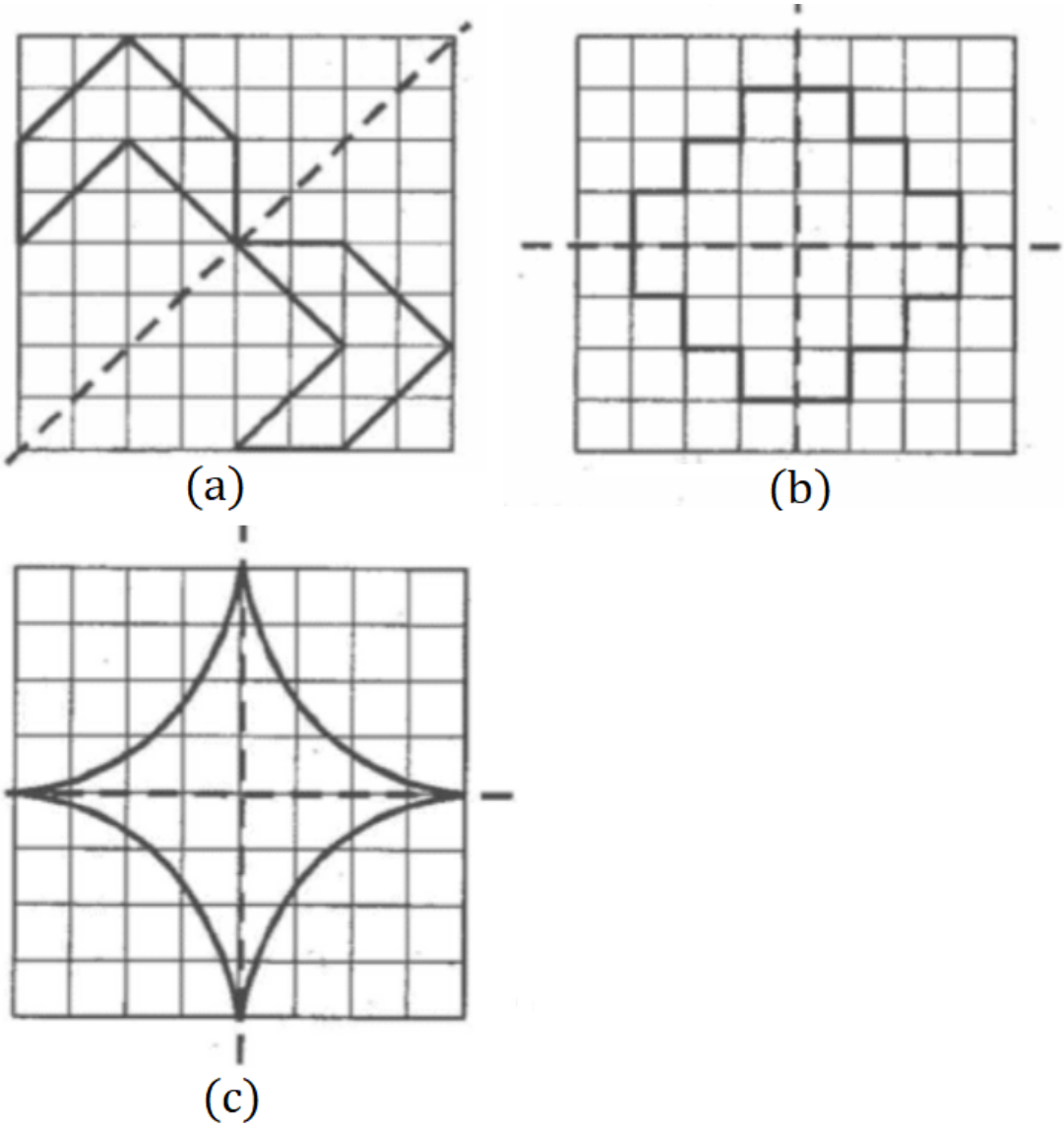


Yes, there is more than one way and this figure will be symmetric about both the diagonals.

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



Answer



NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

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

https://www.indcareer.com/schools/ncert-solutions-for-7th-class-maths-chapter-14-symmetry/

(e) A rectangle

(f) A rhombus

(g) A parallelogram

(h) A quadrilateral

(i) A regular hexagon

(j) A circle

Answer

(a) An equilateral triangle - Three Lines

(b) An isosceles triangle - Only One Line

(c) A scalene triangle - No Line

(d) A square - Four Lines

(e) A rectangle - Two Lines

(f) A rhombus - Four Lines

(g) A parallelogram - No Line

(h) A quadrilateral - No Line

(i) A regular hexagon - Six Lines

(j) A circle - Infinite Lines

NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

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

(a) Vertical mirror - A, H, I, M, 0, T, U, V, W, X and Y

(b) Horizontal mirror - B, C, D, E, H, I, 0 and X

(c) both horizontal and vertical mirrors - O, X,I, H

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

Answer

The three examples are:

1. Quadrilateral

2. Scalene triangle

3. Parallelogram

10. What other name can you give to the line of symmetry of

(a) an isosceles triangle? (b) a circle?

Answer

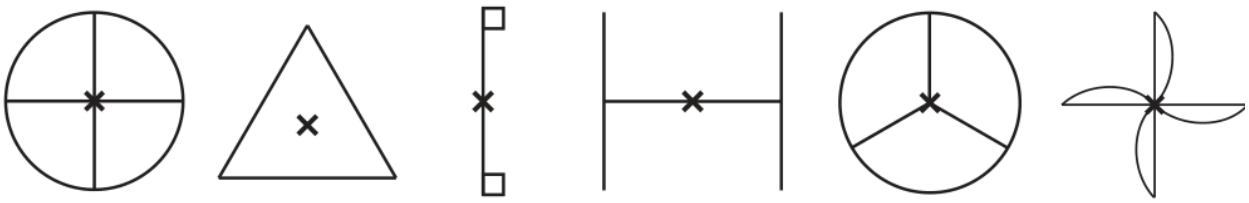
(a) The line of symmetry of an isosceles triangle is median or altitude.

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

NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

Exercise 14.2

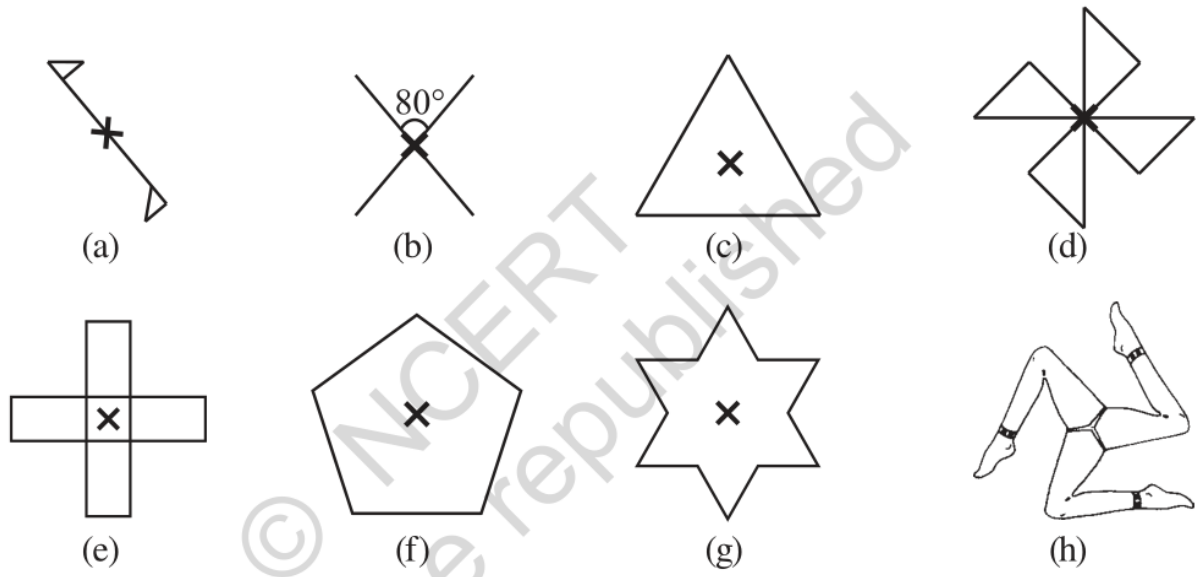
1. Which of the following figures have rotational symmetry of order more than 1:



Answer

Rotational symmetry of order more than 1 are (a),(b),(d),(e) and (f).

2. Give the order the rotational symmetry for each figure:



Answer

(a) 2

(b) 2

(c) 3

(d) 4

(e) 4

(f) 5

(g) 6

(h) 3

NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

Exercise 14.3

https://www.indcareer.com/schools/ncert-solutions-for-7th-class-maths-chapter-14-symmetry/

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

Answer

Circle and Equilateral Triangle.

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.

Answer

(i) An equilateral triangle has both line and rotational symmetries of order more than 1.

(ii) An isosceles triangle has only one line of symmetry and no rotational symmetry of order more than 1.

(iii) It is not possible because order of rotational symmetry is more than 1 of a figure, most acertain the line of symmetry.

(iv) A trapezium which has equal non-parallel sides, a quadrilateral with line symmetry but not a rotational symmetry of order more than 1.

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

Answer

Yes, because every line through the centre forms a line of symmetry and it has rotational symmetry around the centre for every angle.

4. Fill in the blanks:

Shape	Centre of Rotation	Order of Rotation	Angle of Rotation
Square	-	-	-
Rectangle	-	-	-
Rhombus	-	-	-
Equilateral triangle	-	-	-
Regular hexagon	-	-	-
Circle	-	-	-
Semi-circle	-	-	-

Answer

Shape	Centre of Rotation	Order of Rotation	Angle of Rotation
Square	Intersecting point of diagonals.	4	90°
Rectangle	Intersecting point of diagonals.	2	180°
Rhombus	Intersecting point of diagonals.	2	180°
Equilateral triangle	Intersecting point of medians.	3	120°
Regular hexagon	Intersecting point of diagonals.	6	60°
Circle	Centre	Infinite	At every point
Semi-circle	Mid-point of diameter	1	360°

IndCareer

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

Answer

Square has both line and rotational symmetry of order more than 1.

6. After rotating by 60° about a centre, a figure looks exactly the same as its original position. At what other angles will this happen for the figure?

Answer

After rotating by 60° about a centre, a figure looks exactly the same as its original position. This will happen for the figure at angles 120°, 180°, 240°, 300°, 360° respectively.

7. Can we have a rotational symmetry whose angle of rotation is

(i) 45°?

(ii) 17°?

Answer

(i) Yes

(ii) No.

NCERT 7th Maths Chapter 14, class 7 Maths Chapter 14 solutions

Chapterwise NCERT Solutions for Class 7 Maths :

About NCERT

The National Council of Educational Research and Training is an autonomous organization of the Government of India which was established in 1961 as a literary, scientific, and charitable Society under the Societies Registration Act. The major objectives of NCERT and its constituent units are to: undertake, promote and coordinate research in areas related to school education; prepare and publish model textbooks, supplementary material, newsletters, journals and develop educational kits, multimedia digital materials, etc.Organise pre-service and in-service training of teachers; develop and disseminate innovative educational techniques and practices;collaborate and network with state educational departments, universities, NGOs and other educational institutions; act as a clearing house for ideas and information in matters related to school education; and act as a nodal agency for achieving the goals of Universalisation of Elementary Education.In addition to research, development, training, extension, publication and dissemination activities, NCERT is an implementation agency for bilateral cultural exchange programmes with other countries in the field of school education.Its headquarters are located at Sri Aurobindo Marg in New Delhi. Visit the Official NCERT website to learn more.