RS Aggarwal Class 7 Mathematics Solutions
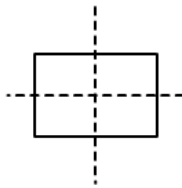## Reflection and Rotational Symmetry

Q1

Answer :

(a) no line of symmetry

Q2

Answer :

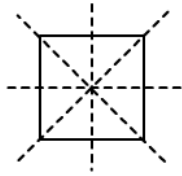(c) a line joining the midpoints of its opposite sides

Q3

Answer :

(d) four lines of symmetry

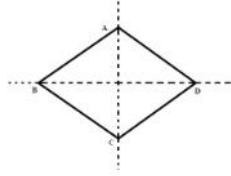A square is symmetrical about both of its diagonals and both lines joining the midpoints of its opposite sides.

Q4

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Answer :

(b) each of its diagonal

Q5

Answer :

(d) an unlimited number of lines of symmetry

A circle is symmetrical about all its diameters and a circle has unlimited number of diameters. Therefore, a circle has unlimited number of lines of symmetry.
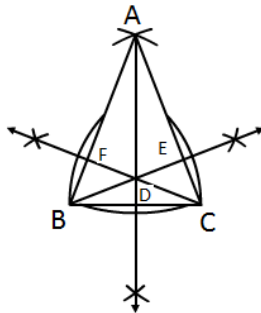
Q6

Answer :
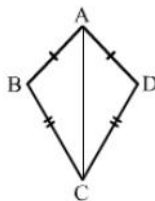
(a) AD

This triangle is symmetrical only about AD.
Any isosceles triangle is symmetrical about its one altitude, which is drawn from the vertex between the two equal sides to the unequal side of the triangle.
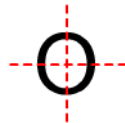
Q7

Answer :

(a) the diagonal AC

Since the part ABC is symmetrical to the part ADC, AC divides the figure into two equal parts.

Q8

Answer :

(c) two lines of symmetry

The letter O of the English alphabetic system is symmetrical about its horizontal and vertical line.
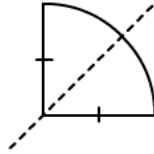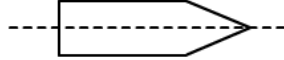
Q9

Answer :

(a) no line of symmetry

Q10

Answer :

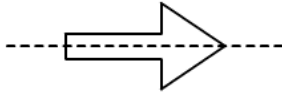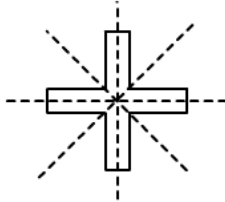Lines of symmetry are shown by the dotted lines.
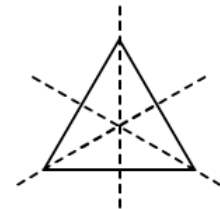
(i)

(ii)

(iii)

(iv)

Q11

Answer :

(i) True

(ii) True

(iii) True

(iv) False

A rhombus is symmetrical about both of its diagonals.
So, a rhombus has two lines of symmetry.

(v) True

A square is symmetrical about both of its diagonals and both the lines joining the midpoints of its opposite sides.
So, a square has four lines of symmetry.
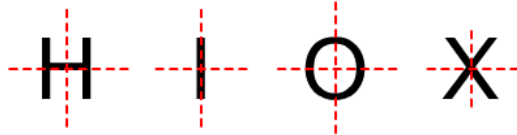
(vi) True

A rectangle is symmetrical about both the lines joining the midpoints of its opposite sides.
So, a rectangle has two lines of symmetry.

(vii) True

Each one of the letters, H, I, O and X, of the English alphabetic system is symmetrical about its horizontal and vertical line, in the middle of the letters.
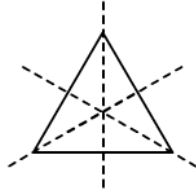So, all these letters have two lines of symmetry.

H I O X

RS Aggarwal Class 7 Mathematics Solutions
Reflection and Rotational Symmetry
Ex 18B

Q1

Answer :

(i) An equilateral triangle has 3 lines of symmetry.

(ii) The number of positions a figure can be rotated to, without bringing in any changes to the way it looked originally, is called its order of rotational symmetry.
So, the order of rotational symmetry of an equilateral triangle is 3.

Q2

Answer :

If we rotate a rectangle by either 180° or 360°, it will look the same as it looked originally, i.e. it will be symmetrical.
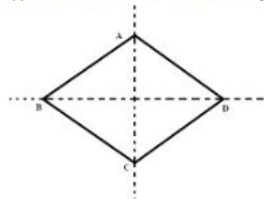
Q3

Answer :

If we rotate the square either by 90º, 180º, 270º or by 360º, the square looks exactly the same.
Therefore, the order of rotational symmetry of a square is 4.

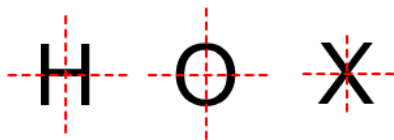**Q4**

Answer :

(i) A rhombus has 2 lines of symmetry.

(ii) When we rotate the rhombus either by 180° or by 360°, it looks the same.
Therefore, the rotational symmetry of a rhombus is 2.

Q5

Answer :

H, O and X are the three letters that have 2 lines of symmetry and their order of rotational symmetry is 2.

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Q6

Answer :

The line of symmetry of an isosceles triangle is the angle bisector of its vertical angle, which is in-between the equal sides. However, it does not have any rotational symmetry.
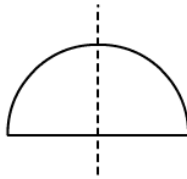
Q7

Answer :

No, every trapezium does not have a line of symmetry.
Only an isosceles trapezium has a line of symmetry.

Q8

Answer :

The perpendicular bisector of the diameter of a circle is its line of symmetry.
No, a semicircle does not have any rotational symmetry as it fits itself only once during a complete rotation.
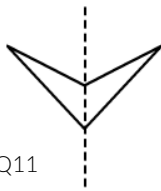
Q9

Answer :

A scalene triangle neither has a line of symmetry nor a rotational symmetry.
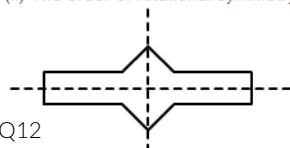
Q10

Answer :

(i) The line of symmetry of the given figure is 1.
(ii) The order of rotational symmetry of the given figure is 0.

Q11

Answer :

(i) The given figure has 2 lines of symmetry.

(ii) The order of rotational symmetry of the given figure is 2.

Q12

Answer :

The example of a letter of the English alphabetic system which has (i) no line of symmetry and (ii) rotational symmetry of order 2 is N.