



MATHS

BOOKS - ICSE

SYMMETRY

Exercise 19 A

1. Which of the following figures has only one line of symmetry ?

A. A rectangle

B. A parallelogram

C. An isosceles trapezium

D. A circle

Answer:



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2. An angle having equal arms possesses how many lines of symmetry ? Show all possible lines of symmetry in such an angle.



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3. How many lines of symmetry does a scalene triangle have ?



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4. A square and a rectangle have :

A. only one line of symmetry each

B. two lines of symmetry each

C. four lines of symmetry each

D. an unequal number of lines of symmetry

Answer:



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5. A rhombus has :

A. one line of symmetry

B. two lines of symmetry each

C. four lines of symmetry

D. no line of symmetry

Answer:



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6. A parallelogram has :

A. no line of symmetry

B. one line of symmetry

C. the same number of lines as the
rhombus

D. four lines of symmetry

Answer:



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7. The capital letter S in the English alphabet has :

A. no line of symmetry

B. one line of symmetry

C. two lines of symmetry

D. infinity number of lines of symmetry

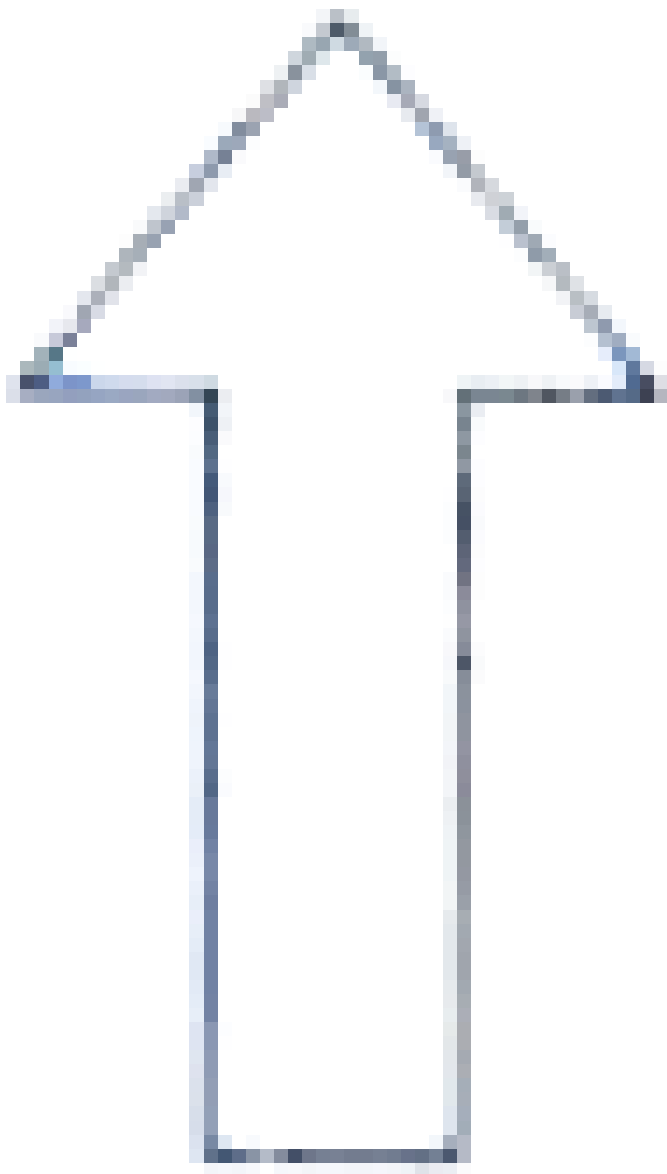
Answer:



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8. Draw all possible lines of symmetry in each of the following figures and state the number

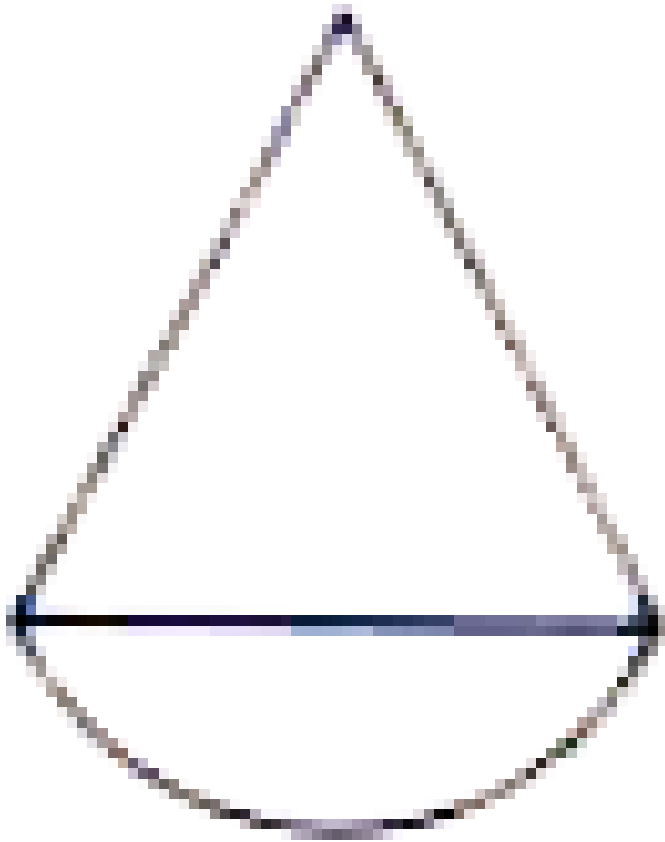
of lines of symmetry in each case.



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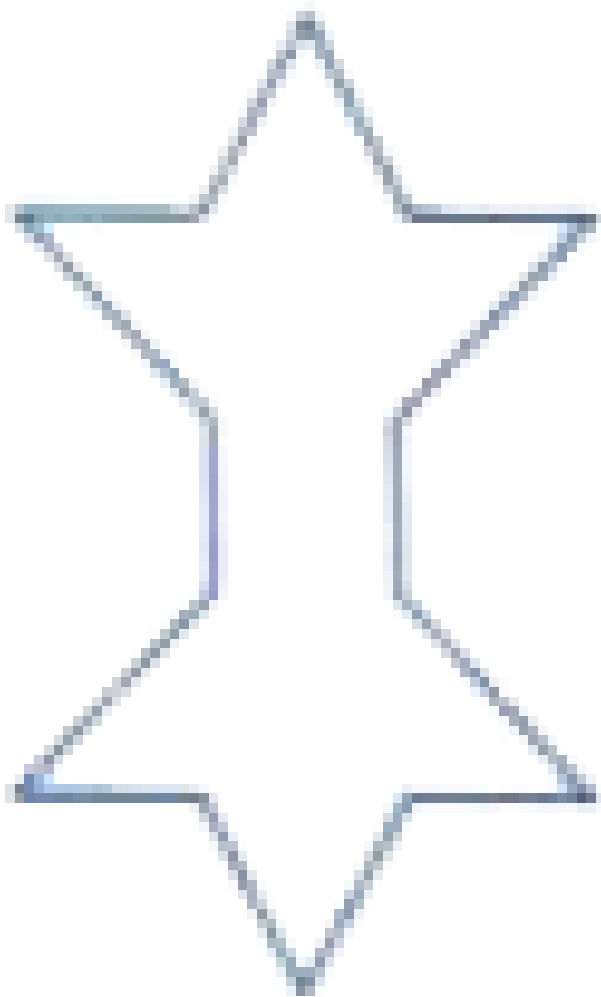
9. Draw all possible lines of symmetry in each of the following figures and state the number

of lines of symmetry in each case.



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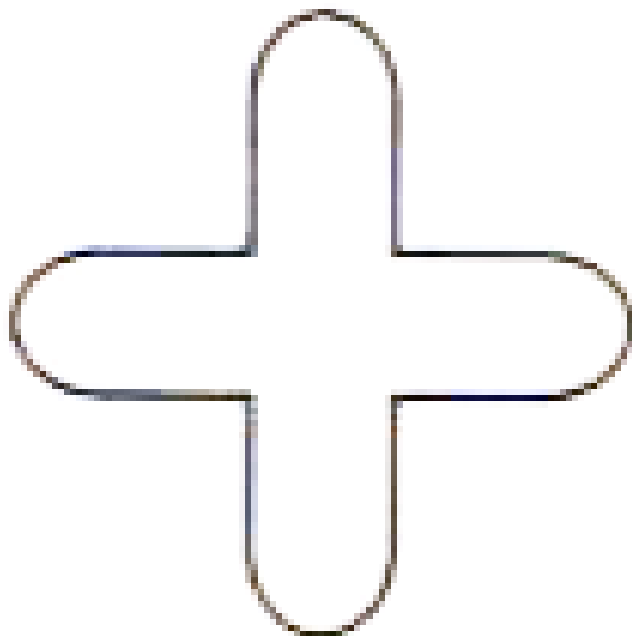
10. Draw all possible lines of symmetry in each of the following figures and state the number of lines of symmetry in each case.





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11. Draw all possible lines of symmetry in each of the following figures and state the number of lines of symmetry in each case.



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12. Draw a regular octagon and draw all possible lines of symmetry in it.



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13. Draw all possible lines of symmetry in :
a regular pentagon



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14. Draw all possible lines of symmetry in :
a regular hexagon



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15. Construct a triangle ABC such that $BC = 6.5$ cm and $\angle B = \angle C = 70^\circ$. Draw all possible lines of symmetry.



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16. Construct a triangle ABC having

$BC = 5$ cm, $\angle B = 90^\circ$ and $\angle C = 45^\circ$.

Draw all possible lines of symmetry.



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17. Construct a triangle PQR having

$PQ = 6$ cm, $\angle P = \angle R = 60^\circ$ and draw all

possible lines of symmetry.



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18. Construct a square having each side equal to 4 cm. Draw all possible lines of symmetry.



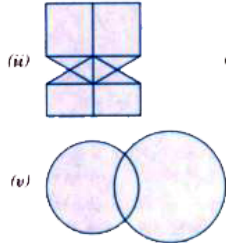
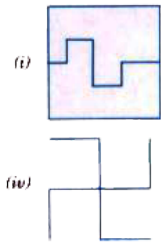
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19. Construct a straight line $AB = 7.3$ cm
Draw its line of symmetry (using a pair of compasses).



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20. State which of the following figures possess at least one line of symmetry :



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Exercise 19 B

1. Which of the following geometrical figures has exactly one line of symmetry ? (i) A

rectangle (ii) A semi circle (iii) A regular
pentagon (iv) A rhombus

A. A rectangle

B. A semicircle

C. A regular pentagon

D. A rhombus

Answer:



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2. Which of the following geometrical figures has exactly two lines of symmetry ? (i) A square (ii) A parallelogram (iii) An isosceles trapezium (iv) A rectangle

A. A square

B. A parallelogram

C. An isosceles trapezium

D. A rectangle

Answer:



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3. An equilateral triangle has three lines of symmetry, an isosceles triangle will have :

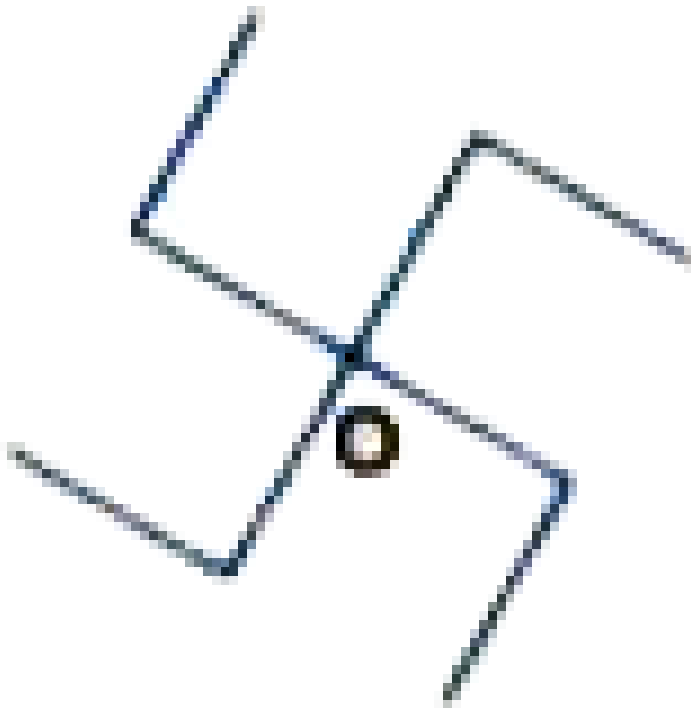
- A. no line of symmetry
- B. one line of symmetry
- C. two lines of symmetry
- D. Three lines of symmetry

Answer:



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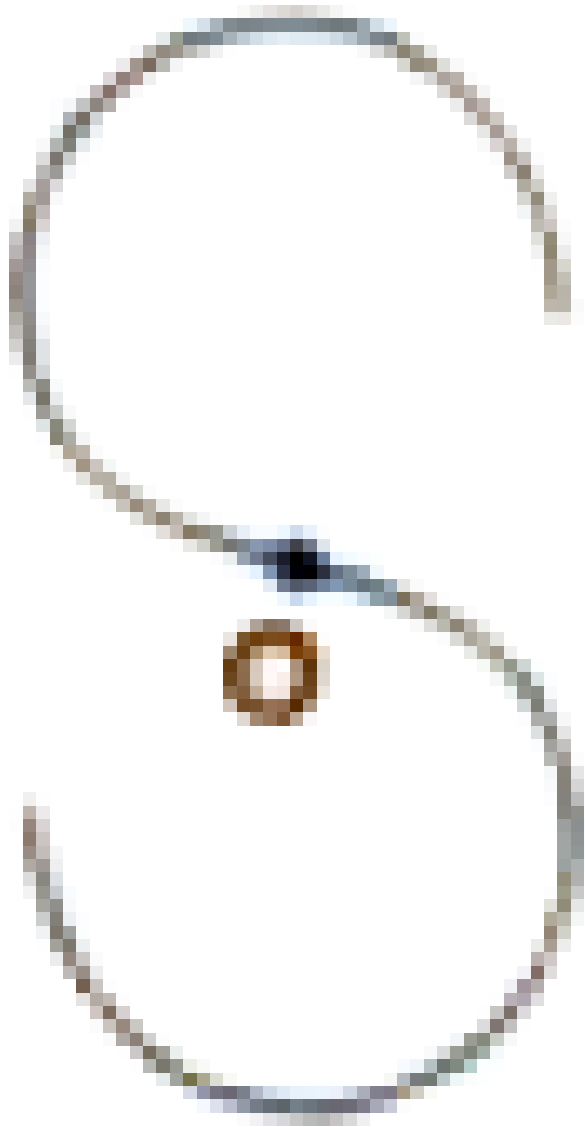
4. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



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5. State the type(s) of symmetry possessed by each of the following figures. Explain each type

of symmetry for these figures.



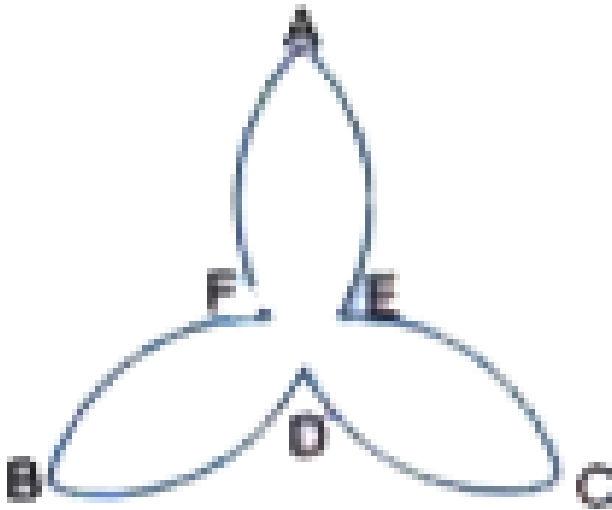
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6. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



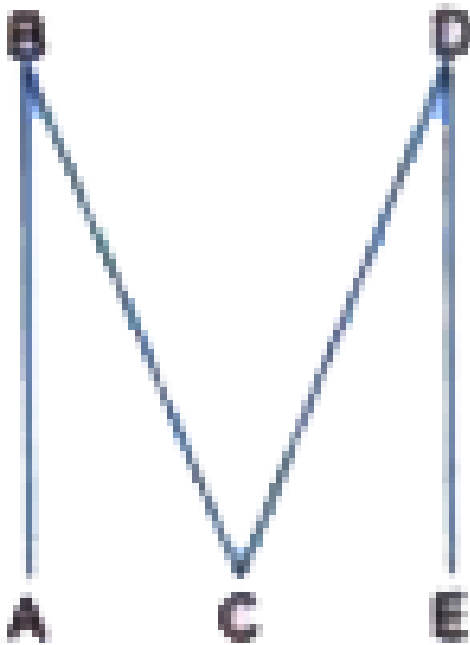
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7. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



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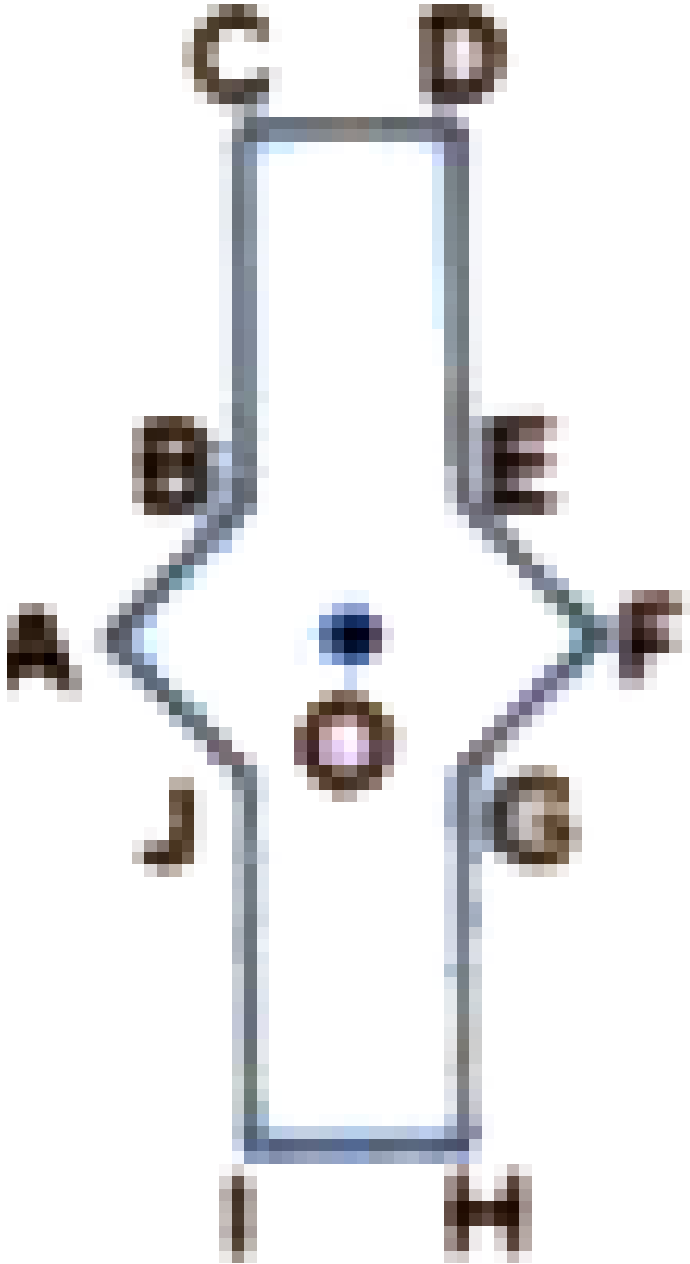
8. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



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9. State the type(s) of symmetry possessed by each of the following figures. Explain each type

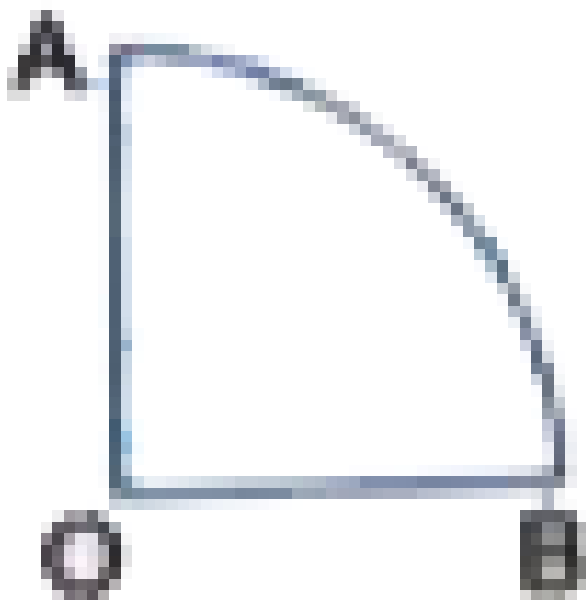
of symmetry for these figures.



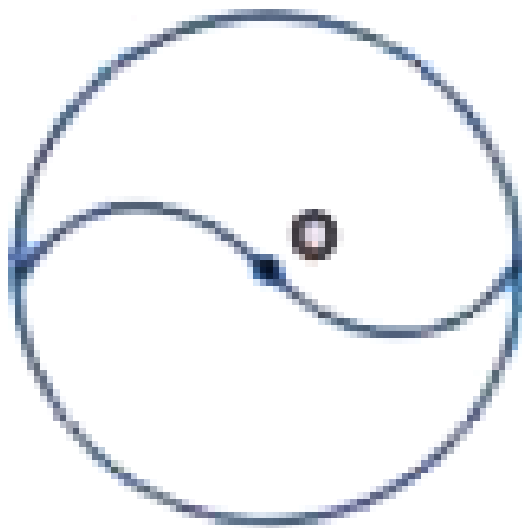


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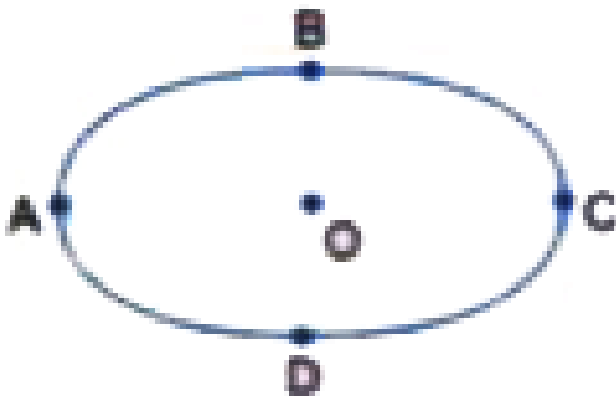
10. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



11. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.

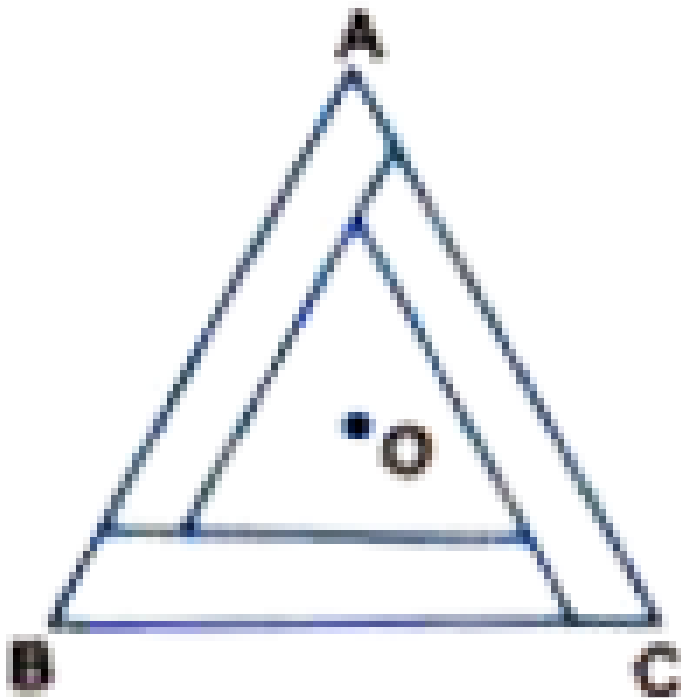


12. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



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13. State the type(s) of symmetry possessed by each of the following figures. Explain each type of symmetry for these figures.



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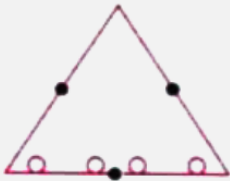
Example

1. Find the line of symmetry in the given figures with punched holes.

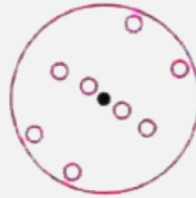
Isosceles

triangle

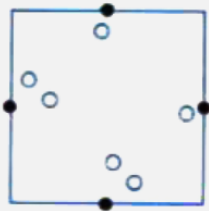
a. Isosceles triangle



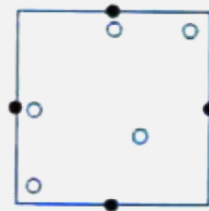
b.



c. Square



d. Square



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2. The lines of symmetry are given in the following punched figures. Find the other holes.



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3. Is there a triangle that does not have a rotational symmetry, but has a single line of symmetry?



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Warm Up Exercise

1. Draw the lines of symmetry in the following shapes.



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2. Fill in the given table.



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3. Which letters of the English alphabet have :
a single horizontal line of symmetry



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4. Which letters of the English alphabet have :
a single vertical line of symmetry



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5. Which letters of the English alphabet have :
one horizontal and one vertical line of
symmetry



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6. Which letters of the English alphabet have :
no lines of symmetry



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7. Complete the figures along the line(s) of symmetry



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8. Complete the figures along the line(s) of symmetry



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Try This

1. Find the line of symmetry in the given figures with punched holes.

Equilateral triangle 



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2. Which of the following figures have rotational symmetry ? Also, find the order of

rotational symmetry of each.

a.



b.



c.



d.



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Exercise 15 1

1. In the given figures, the line of symmetry or the mirror line and the punched holes on one half of the sheet are shown. Find the punched

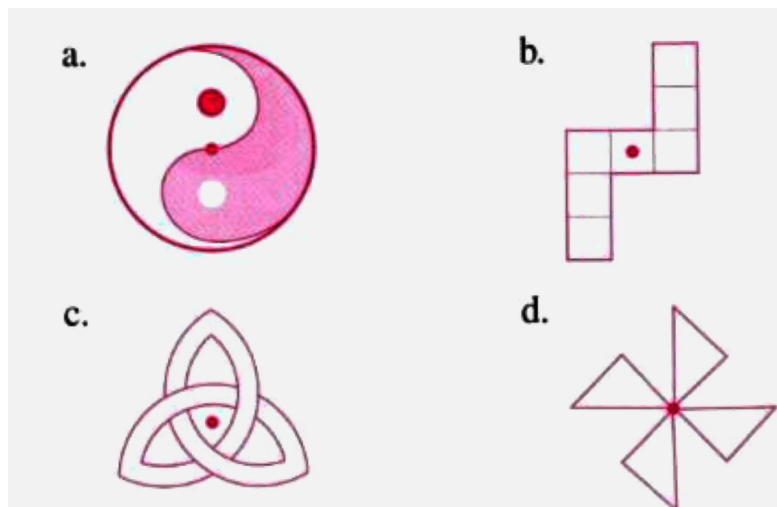
holes on the other half of the sheet.



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2. Which of the following figures have rotational symmetry about the centre of

rotation marked by the red dot ?



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3. Find the order of rotational symmetry of each of the following figures.



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4. Write three capital letters of the English alphabet which have neither rotational symmetry nor reflection symmetry.



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Mental Maths

1. What will be the order of rotational symmetry if the angle of rotation is:

180°



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2. What will be the order of rotational symmetry if the angle of rotation is:

90°



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3. What will be the order of rotational symmetry if the angle of rotation is:

45°



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4. What will be the order of rotational symmetry if the angle of rotation is:

72°



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5. What will be the order of rotational symmetry if the angle of rotation is:

120°



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6. What is the order of rotational symmetry of:
An equilateral triangle?



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7. What is the order of rotational symmetry of:
A square?



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8. What is the order of rotational symmetry of:

A regular heptagon?



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9. What is the order of rotational symmetry of:

A regular heptagon?



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10. Name the quadrilateral which has a rotational symmetry of order: 1



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11. Name the quadrilateral which has a rotational symmetry of order: 2



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12. Name the quadrilateral which has a rotational symmetry of order: 4



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Challenge

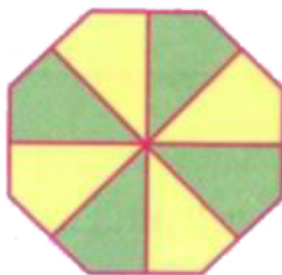
1. Write the number of lines of symmetry, the order of rotational symmetry, and the angle of

rotational symmetry for the given figures.

1.



2.



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Revision Exercise

1. Complete each of the following figures about the dotted line(s) of symmetry.

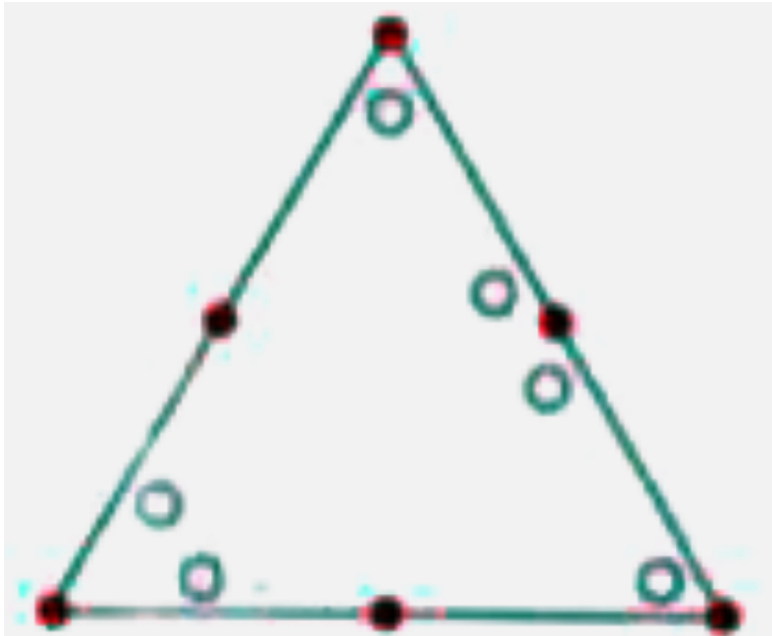


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2. The given figures show the unfolded sheet of paper after holes have been punched on the folded paper. Find the lines of symmetry.

Equilateral

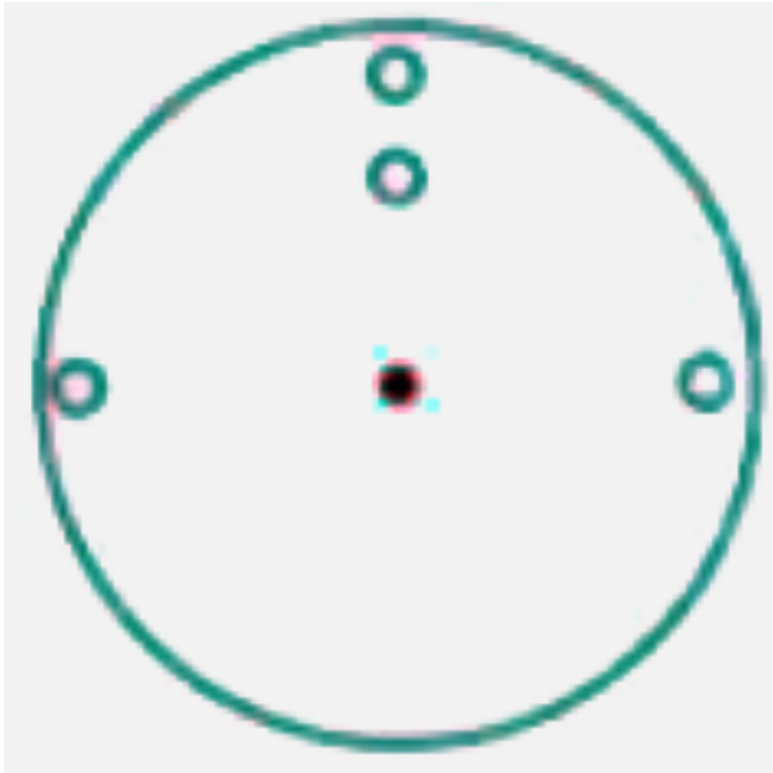
triangle



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3. The given figures show the unfolded sheet of paper after holes have been punched on

the folded paper. Find the lines of symmetry.

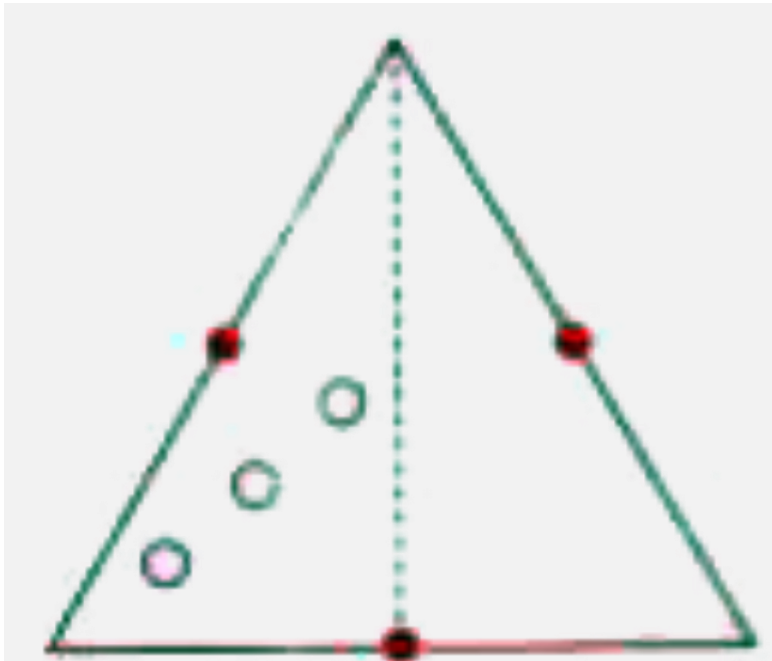


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4. In the given figures, the line of symmetry or the mirror line and the punched holes on one half of the sheet is shown. Find the punched holes in the other half of the sheet.

Isosceles

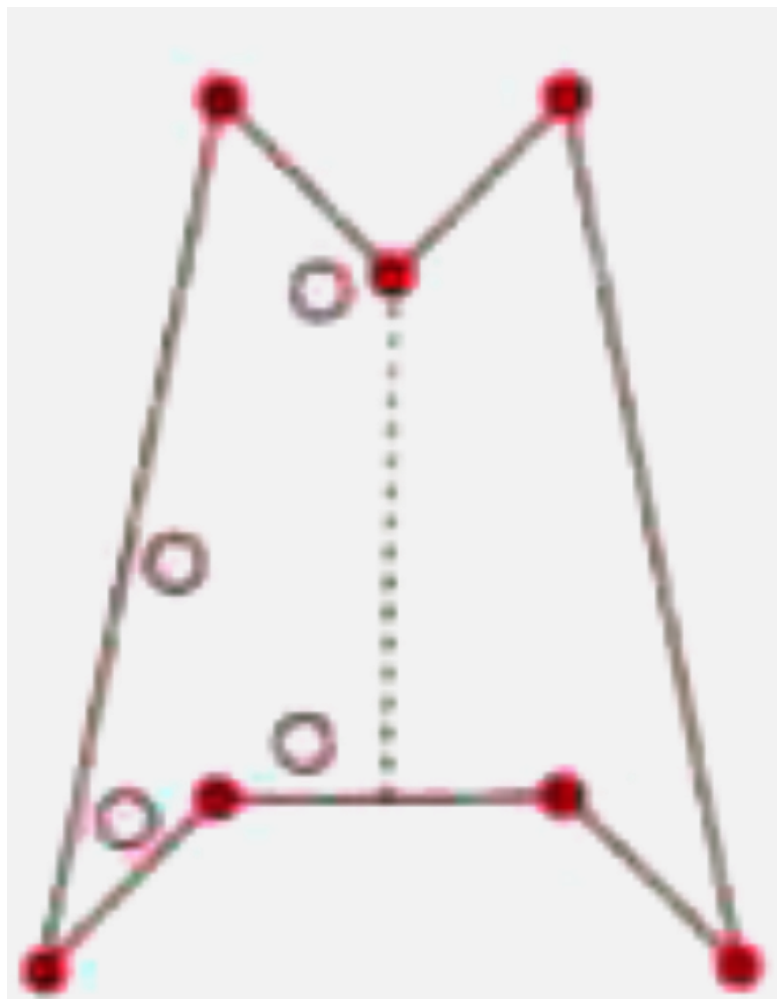
triangle



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5. In the given figures, the line of symmetry or the mirror line and the punched holes on one half of the sheet is shown. Find the punched

holes in the other half of the sheet.



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6. Fill in the blanks.

a. The angle through which an object turns before it looks exactly as it looked before the rotation started is called _____.

A. Axis

B. angle of rotation

C. line of symmetry

D. none of these

Answer: B



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7. Fill in the blanks.

b. The number of times an object looks exactly as it looked before the rotation started in one complete rotation is called _____.

A. Line of rotation

B. Axis

C. order of rotation

D. None of these

Answer: C



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8. Write three capital letters of the English alphabet that have line symmetry but not rotational symmetry?



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9. Write three capital letters of the English alphabet that do not have line symmetry but

have rotational symmetry?



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