EduSahara™ Worksheet

Name : Chapter Based Worksheet

Chapter : Symmetry, Reflection and Rotation

Grade : ICSE Grade VIII

1. Which of the following figures have all symmetries viz. line symmetry, point symmetry and rotational symmetry?

   a) circle
   b) equilateral triangle
   c) square
   d) regular pentagon
   e) parallelogram
   f) angle with equal arms
   g) line segment
   h) regular hexagon

   (i) {b,a} (ii) {a,c,g,h} (iii) {e,f,g} (iv) {d,c} (v) {b,h,a}

2. Find the new position of point $(4,8)$ when rotated through $90°$ clockwise about the origin

   (i) $((-4),8)$ (ii) $(8,4)$ (iii) $(8,(-4))$ (iv) $((-8),(-4))$ (v) $((-8),4)$

3. Write down the coordinates when reflected in the y-axis $(4,(-4)),((-7),2),((-8),1),(8,6)$

   (i) $((-4),(-4)),(7,2),(9,0),((-8),6)$ (ii) $((-2),(-2)),(7,2),(8,1),((-8),6)$

   (iii) $((-4),(-4)),(7,2),(8,1),((-8),6)$ (iv) $((-4),(-4)),(7,2),(6,(-1)),((-8),6)$

   (v) $((-4),(-4)),(7,2),(8,1),((-9),7)$

4. Find the image of the point $((-6),(-2))$ when reflected in x-axis

   (i) $(6,2)$ (ii) $((-6),2)$ (iii) $(2,(-6))$ (iv) $(6,(-2))$ (v) $((-5),2)$

5. The English alphabet letter 'L' has how many lines of symmetry?

   (i) infinite (ii) zero (iii) one (iv) two (v) three

6. Which of the following quadrilaterals have three lines of symmetry?

   a) none
   b) isosceles trapezium
   c) parallelogram
   d) trapezium
   e) square
   f) rhombus
   g) rectangle

   (i) {a} (ii) {c,a} (iii) {d,e,a} (iv) {b,a} (v) {f,a}

7. Find the image of the rectangle formed by $((-6),(-1)),(2,(-1)),(2,2)$ and $((-6),2)$ when rotated about the origin by $180°$

   (i) $(6,1),((-2),1),((-2),(-2)),(5,(-1))$ (ii) $(6,1),((-2),1),((-2),(-2)),(6,(-2))$

   (iii) $(6,1),((-2),1),((-4),(-4)),(6,(-2))$ (iv) $(6,1),((-2),1),((-1),(-3)),(6,(-2))$

   (v) $(8,3),((-2),1),((-2),(-2)),(6,(-2))$

8. Which of the following quadrilaterals have no rotational symmetry?

a) parallelogram
b) square
c) isosceles trapezium
d) trapezium
e) rectangle
f) rhombus
g) kite

(i) {c,d,g} (ii) {a,c} (iii) {a,c,d} (iv) {e,f,g} (v) {b,d}

9. Write down the coordinates when reflected in the y-axis $((-9),(-7)),(1,7),((-2),7)$

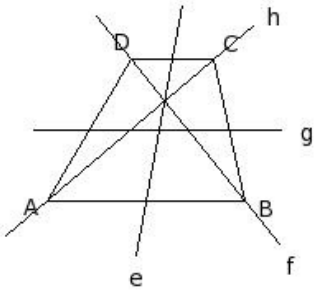
(i) $(9,(-7)),((-1),7),(0,5)$ (ii) $(9,(-7)),(1,9),(2,7)$ (iii) $(9,(-7)),((-1),7),(2,7)$

(iv) $(8,(-6)),((-1),7),(2,7)$ (v) $(9,(-7)),((-1),7),(3,6)$

10. Which of the following English alphabet letters have infinite lines of symmetry?

(i) O (ii) X (iii) I (iv) A (v) V

11. Which of the following are line(s) of symmetry for the given trapezium?



(i) e (ii) none (iii) h (iv) g (v) { f, h }

12. Which of the following are true?

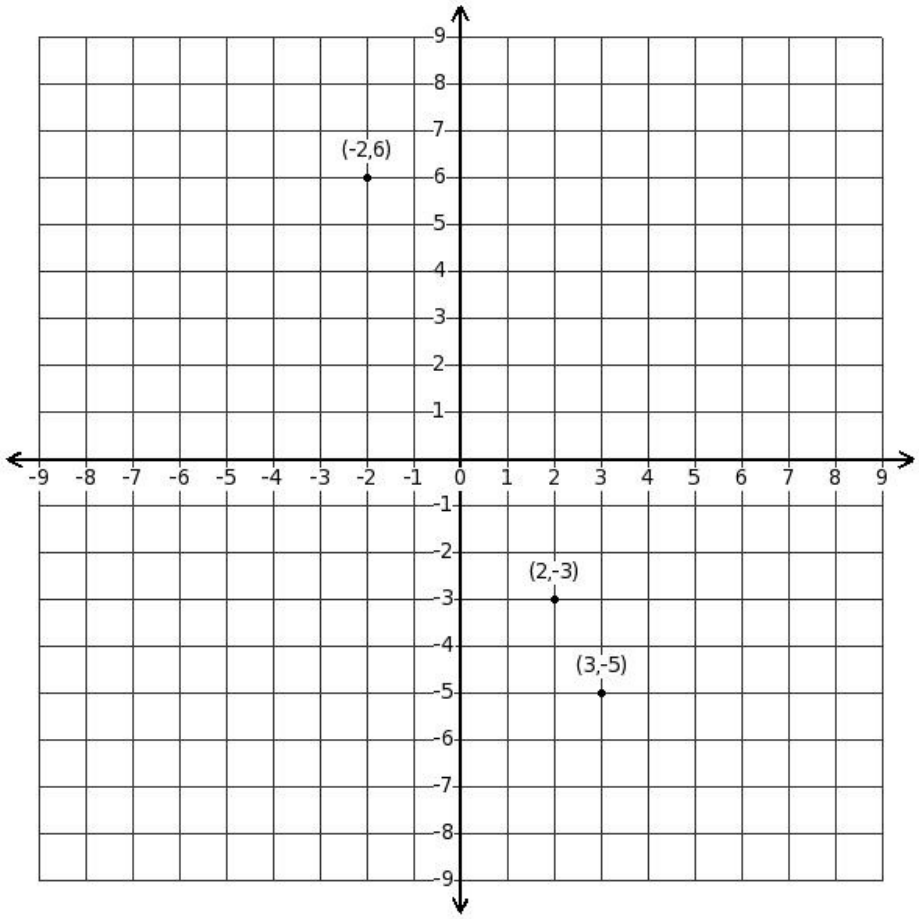
a) Lines of symmetry of a regular polygon are nothing but the diagonals of a regular polygon.
b) An n-sided regular polygon has n/2 lines of symmetry if n is even.
c) If a triangle has two lines of symmetry, then it is a regular polygon.
d) A regular polygon of n sides will have n lines of symmetry.
e) If a quadrilateral has four lines of symmetry, then it is a regular polygon.
f) Line of symmetry divides the polygon into two identical shapes.
g) If a polygon is not regular, it will have less number of axes of symmetry than the number of sides.

(i) {b,g,d} (ii) {a,d} (iii) {b,e} (iv) {c,a,f} (v) {d,e,f,g}

13. Find the image of the point $(1,2)$ when reflected in the origin

(i) $((-1),(-2))$ (ii) $(0,(-2))$ (iii) $((-2),(-1))$ (iv) $((-1),2)$ (v) $(1,(-2))$

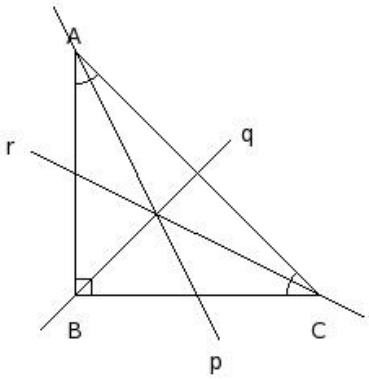
14. Write down the coordinates when reflected in the y-axis



(i) $((-3),(-5)),((-2),(-3)),(3,5)$ (ii) $((-4),(-4)),((-2),(-3)),(2,6)$ (iii) $((-3),(-5)),(0,(-1)),(2,6)$

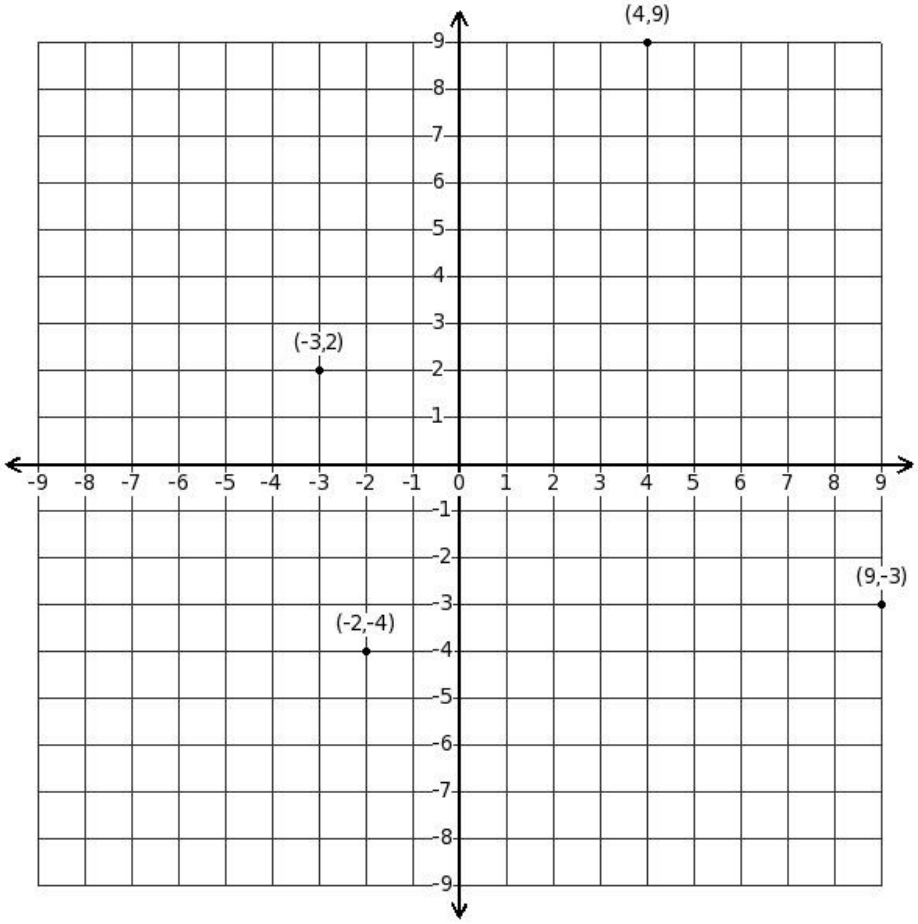
(iv) $((-3),(-5)),((-2),(-3)),(2,6)$ (v) $((-3),(-5)),((-2),(-3)),(0,4)$

15. Identify the line(s) of symmetry in the following figure



(i) none (ii) r (iii) q (iv) { p, q, r } (v) p

16. Write down the coordinates when reflected in the y-axis

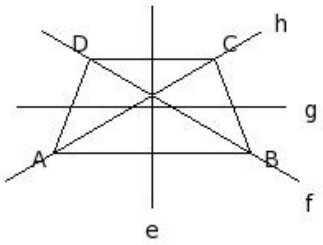


(i) $((-2),11),(2,(-4)),(3,2),((-9),(-3))$ (ii) $((-4),9),(2,(-4)),(4,1),((-9),(-3))$

(iii) $((-4),9),(2,(-4)),(3,2),((-10),(-2))$ (iv) $((-4),9),(2,(-4)),(3,2),((-9),(-3))$

(v) $((-4),9),(2,(-4)),(1,0),((-9),(-3))$

17. Which of the following are line(s) of symmetry for the given isosceles trapezium?



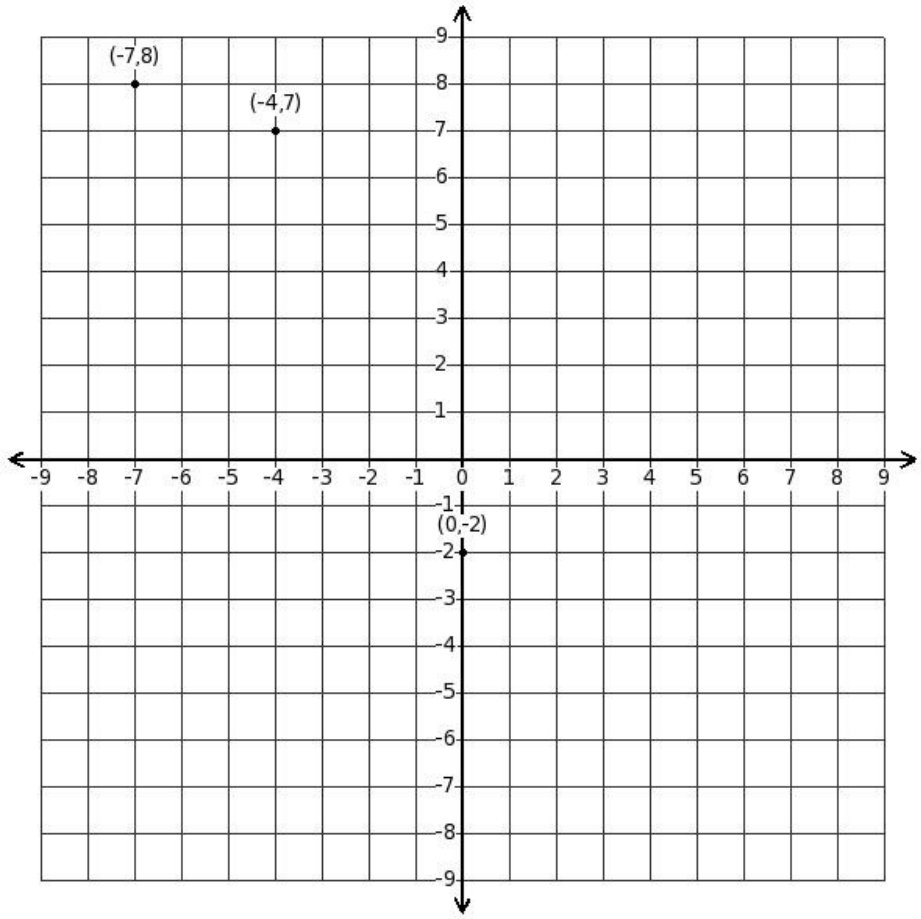
(i) { e, g } (ii) g (iii) h (iv) { e, f, g, h } (v) e

18. Find the image of the triangle formed by $((-3),(-5)),(7,(-5))$ and $(0,(-8))$ when rotated about the origin by 270°

(i) $((-5),3),((-3),(-5)),((-8),0)$ (ii) $((-5),3),((-5),(-7)),((-8),0)$ (iii) $((-6),4),((-5),(-7)),((-8),0)$

(iv) $((-5),3),((-5),(-7)),((-10),(-2))$ (v) $((-5),3),((-5),(-7)),((-7),(-1))$

19. Write down the coordinates when reflected in the x-axis



(i) $((-4),(-7)),((-7),(-8)),(1,1)$ (ii) $((-4),(-7)),((-7),(-8)),((-2),0)$

(iii) $((-5),(-6)),((-7),(-8)),(0,2)$ (iv) $((-4),(-7)),((-7),(-8)),(0,2)$ (v) $((-4),(-7)),((-5),(-6)),(0,2)$

20. Find the image of the point $(5,(-3))$ when reflected in y-axis

(i) $((-5),(-3))$ (ii) $(5,3)$ (iii) $((-5),3)$ (iv) $((-4),(-3))$ (v) $((-3),(-5))$

21. Find the new position of point $((-9),(-5))$ when rotated through $90°$ anticlockwise about the origin

(i) $(5,(-9))$ (ii) $((-9),5)$ (iii) $((-5),(-9))$ (iv) $((-5),9)$ (v) $(5,9)$

22. Which of the following quadrilaterals have zero lines of symmetry?

a) trapezium
b) kite
c) isosceles trapezium
d) rectangle
e) parallelogram
f) rhombus
g) square

(i) {d,f,a} (ii) {g,e,a} (iii) {a,e} (iv) {c,e} (v) {b,a}

23. Write down the coordinates when reflected in the origin $((-7),7),(7,6),(3,5),((-5),(-8))$

(i) $(7,(-7)),((-7),(-6)),((-3),(-5)),(4,9)$ (ii) $(7,(-7)),((-7),(-6)),((-3),(-5)),(5,8)$

(iii) $(7,(-7)),((-7),(-6)),((-5),(-7)),(5,8)$ (iv) $(7,(-7)),((-7),(-6)),((-2),(-6)),(5,8)$

(v) $(9,(-5)),((-7),(-6)),((-3),(-5)),(5,8)$

24. Which of the following figures have no line of symmetry?

a) isosceles triangle
b) angle with equal arms
c) angle with unequal arms
d) equilateral triangle
e) scalene triangle
f) line segment

(i) {a,c} (ii) {c,e} (iii) {d,f,c} (iv) {a,e,c} (v) {b,e}

25. Which of the following English alphabet letters does not have point symmetry?

(i) N (ii) C (iii) X (iv) O (v) I

Assignment Key

1) (ii)	2) (iii)	3) (iii)	4) (ii)	5) (ii)	6) (i)
7) (ii)	8) (i)	9) (iii)	10) (i)	11) (ii)	12) (v)
13) (i)	14) (iv)	15) (iii)	16) (iv)	17) (v)	18) (ii)
19) (iv)	20) (i)	21) (i)	22) (iii)	23) (ii)	24) (ii)
25) (ii)					