

## Math Worksheet for 6th Grade

### Polygons on the coordinate plane

#### Questions

1. Plot the quadrilateral with vertices A(1,1), B(4,1), C(4,3), D(1,3). What type of quadrilateral is it?
2. Using the vertices in Q1, what is the area of the quadrilateral?
3. Give coordinates of four vertices that make a square of side length 2 with one vertex at (0,0).
4. Draw a quadrilateral with vertices (2,2), (5,2), (6,5), (3,5). Is this quadrilateral a parallelogram? ( $\frac{Yes}{No}$ )
5. List the coordinates of a rectangle that has corners at  $x = -1$  and  $x = 3$ , and  $y = 0$  and  $y = 4$ .
6. On the coordinate plane, vertices of a quadrilateral are (0,0), (4,0), (3,2), (-1,2). What is its area?
7. Give coordinates of a trapezoid with bases on  $y = 1$  and  $y = 4$  and with base lengths 5 and 3.
8. If a quadrilateral has vertices (1,1), (5,1), (4,4), (0,4), is it symmetric about a vertical line? ( $\frac{Yes}{No}$ )
9. Parallelogram with vertices A(1,1), B(5,1), C(7,4), D(3,4). What is the base length AB?
10. For the parallelogram in Q9, what is the vertical height (distance between the two horizontal bases)?
11. What is the area of the parallelogram in Q9?
12. Parallelogram has vertices (0,0), (6,0), (4,3), (-2,3). Find its area.
13. A parallelogram has base along the x-axis from  $x = 2$  to  $x = 7$  and top side at  $y = 5$ . What is its area?
14. Given parallelogram vertices P(2,0), Q(6,0), R(8,3), S(4,3), what is the area?
15. Find the missing vertex of a rectangle if three vertices are A(1,2), B(5,2), C(5,6).
16. Find the missing vertex of a rectangle if three vertices are A(-2,1), B(2,1), D(-2,4).
17. For a rectangle with vertices (0,0) and (0,5) and (7,0), what is the fourth vertex?
18. A rectangle has vertices (3,2), (8,2), (8,7). What is the missing vertex?
19. Given rectangle with opposite vertices at (1,1) and (6,4), what are the other two vertices?
20. A rectangle has vertices (-3,-1), (2,-1), (2,3). What is the missing vertex?
21. Identify the shape with vertices (0,0), (4,0), (4,4), (0,4).
22. Identify the shape with vertices (0,0), (5,0), (7,3), (2,3).
23. Identify the shape with vertices (1,1), (4,1), (6,4), (3,4).
24. Given points A(2,2), B(6,2), C(6,5), D(2,5): what are the length and width of this rectangle?
25. Rectangle has vertices (-1,0), (3,0), (3,4), (-1,4). What are its dimensions?
26. Rectangle corners are (2,-2) and (2,3) and (7,3). What are its length and width?
27. A rectangle has vertices at (0,0), (0,6), (10,0), (10,6). What is its area?
28. Given rectangle with vertices (-4, -2) and (1, -2) and (1,2), what is the area?
29. A rectangle has vertices (1,1), (1,5), (6,1). Find its perimeter.
30. Points (0,0), (4,0), (4,3), (0,3) form a rectangle. What is the length of the diagonal from (0,0) to (4,3)? (Give exact value without simplifying if needed.)



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Name: \_\_\_\_\_

Due Date: \_\_\_\_\_

Teacher: \_\_\_\_\_

Parent Sign: \_\_\_\_\_

31. Find the missing vertex of a parallelogram with vertices A(1,1), B(5,1), C(7,4).
32. Find the fourth vertex of a parallelogram if vertices are (-2,0), (1,3), (4,3).
33. Parallelogram has vertices (0,2), (3,2), (5,5). Find the missing fourth vertex.
34. Given parallelogram with vertices (2,0), (6,0), (9,3), find the fourth vertex.
35. A parallelogram has vertices (-1,1), (3,1), (1,4). Find the missing vertex.
36. A parallelogram has base from  $x = 0$  to  $x = 5$  at  $y = 1$  and top at  $y = 4$ . What is its area?
37. Parallelogram has vertices (2,2), (7,2), (5,6), (0,6). What is its area?
38. A parallelogram has vertices (-3,0), (1,0), (2,2), (-2,2). What is the base length and height? Then area?
39. Given shape with vertices (1,1), (5,1), (6,3), (2,3): is it a parallelogram? If yes, what is its area?
40. Rectangle with vertices (0,1), (4,1), (4,5), (0,5). One vertex moves to (0,3). If the other vertices stay same, is the figure still a rectangle? ( $\frac{Yes}{No}$ )
41. A rectangle has one side on the x-axis from  $x = -2$  to  $x = 3$  and the top side at  $y = 4$ . Write the four vertices.
42. Given three vertices of a rectangle (1,2), (1,7), (6,2), find the fourth vertex.
43. A square has one vertex at (2,2) and side length 3 aligned with axes. Give all vertices.
44. Given points (-1, -1), (2, -1), (2,2), (-1,2): what is the area?
45. Which of these four points makes a square: (0,0), (3,0), (3,3), (0,3)? ( $\frac{Yes}{No}$ )
46. Rectangle has vertices (-4,0), (0,0), (0,5), (-4,5). A point (-2,3) is inside. True or False?
47. Given parallelogram vertices (0,0), (4,0), (6,2), (2,2): compute its area.
48. Rectangle has vertices (1,1), (5,1), (5,4), (1,4). If you translate every vertex right by 3, what are the new vertices?
49. A parallelogram has vertices (3,1), (7,1), (9,4), (5,4). If base = 4 and height = 3, confirm its area.
50. Given points (0,0), (4,0), (5,2), (1,2): list the base length, height, and area.