Mathematics Worksheet – Year 7

Paul's Coaching Global

Topic(s): Cartesian Coordinates **Total Marks:** 50 **Time:** 50 minutes

Name: Class: Date:

Instructions

- Answer all questions.
- Choose the best answer for each multiple-choice question.
- Read each question carefully before answering.

Section A: Multiple Choice Questions

1. In which quadrant does the point (-4, 5) lie? a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV
2. What are the coordinates of the origin in a Cartesian plane? a) (1, 1) b) (0, 0) c) (0, 1) d) (1, 0)
3. A point lies on the x-axis. Which of the following must be true about its coordinates? a) The x-coordinate is 0. b) The y-coordinate is 0. c) Both coordinates are 0. d) The x-coordinate is equal to the y-coordinate.
4. Which of the following points lies in Quadrant IV? a) (5, -3) b) (-5, 3) c) (-5, -3) d) (5, 3)
5. The point P is at (7, 2). If it is translated 4 units to the left, what are its new coordinates? a) (11, 2) b) (7, 6) c) (3, 2) d) (7, -2)

6. What is the reflection of the point (3, -5) in the y-axis? a) (-3, -5) b) (3, 5) c) (-3, 5) d) (-5, 3)

7. A point has a negative x-coordinate and a negative y-coordinate. In which quadrant is it located? a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV

8. Which point is located at (0, -6)? a) A point on the x-axis. b) A point in Quadrant III. c) A point on the y-axis. d) The origin.

9. The point (6, 1) is translated 2 units down. What are the new coordinates? a) (8, 1) b) (4, 1) c) (6, 3) d) (6, -1)

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10. What is the reflection of the point (-2, 8) in the x-axis? a) (2, 8) b) (-2, -8) c) (2, -8) d) (8, -2)

11. The points A(1, 1), B(5, 1), and C(5, 4) are three vertices of a rectangle. What are the coordinates of the fourth vertex, D? a) (1, 5) b) (4, 5) c) (1, 4) d) (4, 1)

12. If a point (a, b) is in Quadrant II, which of the following is true? a) $a > 0$, $b > 0$ b) $a < 0$, $b > 0$ c) $a < 0$, $b < 0$ d) $a > 0$, $b < 0$

13. The point (5, 3) is rotated 180° about the origin. What are its new coordinates? a) (-5, -3) b) (-5, 3) c) (5, -3) d) (-3, -5)

14. A point is moved from (2, 2) to (2, -5). What translation has occurred? a) 7 units right b) 7 units left c) 7 units up d) 7 units down

15. Which of the following points does NOT lie in any quadrant? a) (1, 1) b) (-2, 3) c) (0, 4) d) (5, -6)

16. The point (-4, -9) is reflected in the y-axis. What are the coordinates of the reflected point? a) (4, -9) b) (-4, 9) c) (4, 9) d) (9, 4)

17. A point is translated 5 units right and 3 units up to the new position (1, 7). What were the original coordinates? a) (-4, 4) b) (6, 10) c) (4, -4) d) (-6, -10)

18. The point (4, -2) is rotated 90° anti-clockwise about the origin. What are its new coordinates? a) (2, 4) b) (-2, -4) c) (4, 2) d) (-4, -2)

19. Three vertices of a square are (-2, 3), (4, 3), and (4, -3). What are the coordinates of the fourth vertex? a) (3, -2) b) (-2, -3) c) (-3, 2) d) (-2, 4)

20. If a point (x, y) is reflected in the x-axis, its new coordinates are: a) (x, -y) b) (-x, y) c) (-x, -y) d) (y, x)

21. Which of these points is furthest from the origin? a) (0, 5) b) (3, 4) c) (-6, 0) d) (5, -2)

22. The point Q is at (-3, 5). It is translated to Q' at (2, 1). What was the translation? a) 5 units right, 4 units down b) 5 units left, 4 units up c) 1 unit right, 4 units down d) 1 unit left, 4 units up

23. The reflection of a point P in the origin is (-2, 7). What are the coordinates of P? a) (2, -7) b) (-2, -7) c) (7, -2) d) (2, 7)

24. A horizontal line passes through the point (3, -4). Which other point does it pass through? a) (3, 4) b) (-3, -4) c) (-4, 3) d) (-3, 4)

25. The point (7, 0) is on which axis? a) The x-axis b) The y-axis c) Both axes d) Neither axis

26. A point is in Quadrant I. After a reflection in the y-axis, in which quadrant will it be? a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV

27. The point (-6, 2) is rotated 90° clockwise about the origin. What are its new coordinates? a) (2, 6) b) (-2, -6) c) (6, -2) d) (2, -6)

28. A vertical line passes through the point (-5, 8). Which of the following describes the line? a) y = 8 b) x = 8 c) y = -5 d) x = -5

29. Point A is at (5, 2). It is reflected in the x-axis to get point B. Point B is then reflected in the y-axis to get point C. What are the coordinates of C? a) (5, 2) b) (-5, 2) c) (5, -2) d) (-5, -2)

30. Which of the following transformations moves the point (3, 4) to (-3, -4)? a) Reflection in the x-axis b) Reflection in the y-axis c) Rotation of 180° about the origin d) Translation of 6 units left and 8 units down

31. The points (-2, 2), (3, 2), (3, -1) and (-2, -1) are the vertices of a: a) Square b) Rectangle c) Rhombus d) Parallelogram

32. A point in Quadrant IV is translated 10 units up. In which quadrant could the new point be? a) Quadrant IV only b) Quadrant I only c) Quadrant I or Quadrant IV d) Quadrant II or Quadrant III

33. If you plot the points A(-3, 0), B(0, 4), and C(3, 0), what shape do they form with the origin? a) A square b) A rectangle c) A kite d) A triangle

34. The point P(a, b) is reflected in the y-axis to become P'(-2, 5). What are the values of a and b? a) a = 2, b = 5 b) a = -2, b = 5 c) a = 2, b = -5 d) a = -2, b = -5

35. A point is rotated 270° anti-clockwise about the origin. This is the same as which other rotation? a) 90° anti-clockwise b) 180° clockwise c) 90° clockwise d) 270° clockwise
36. The point (-5, -1) is translated to (0, 0). What was the translation? a) 5 units left, 1 unit down b) 5 units right, 1 unit up c) 1 unit right, 5 units up d) 1 unit left, 5 units down
37. Which point is the reflection of (a, -b) in the x-axis? a) (-a, -b) b) (a, b) c) (-a, b) d) (b, a)
38. The points P(2, 5), Q(2, 1) and R(7, 1) form a right-angled triangle. What is the length of the side PQ? a) 2 units b) 4 units c) 5 units d) 7 units
39. A point is in Quadrant III. After a reflection in the x-axis, in which quadrant will it be? a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV
40. The point (10, -3) is rotated 180° about the origin. What are the new coordinates? a) (-10, 3) b) (10, 3) c) (-10, -3) d) (-3, 10)
41. A shape is translated by the rule $(x, y) \rightarrow (x - 4, y + 6)$. If a vertex is at (1, -2), where will its new position be? a) (5, 4) b) (-3, 4) c) (5, -8) d) (-3, -8)
42. The line $y = 3$ is a: a) Vertical line b) Horizontal line c) Line passing through the origin d) Line parallel to the y-axis
43. The point (x, y) is in Quadrant I. The point (y, x) is in: a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV
44. What is the result of reflecting the point (-7, -1) in the y-axis? a) (7, 1) b) (-7, 1) c) (7, -1) d) (1, 7)
45. The points (0,0), (5,0), (5,5) and (0,5) form a square. What happens to the coordinates if the square is translated 2 units left? a) (-2,0), (3,0), (3,5), (-2,5) b) (0,-2), (5,-2), (5,3), (0,3) c) (2,0), (7,0), (7,5), (2,5) d) The shape changes.

46. A point P(x, y) is rotated 90° anti-clockwise about the origin to get P'(-y, x). What are the coordinates of the point (2, 3) after this rotation? a) (-2, 3) b) (3, -2) c) (-3, 2) d) (2, -3)
47. Which of these points is closest to the point (2, 3)? a) (2, 5) b) (1, 3) c) (4, 3) d) (2, 1)
48. A point is reflected in the x-axis and then in the y-axis. This is equivalent to: a) A translation b) A reflection in the origin c) A 90° rotation d) No change
49. The point (a, b) is in Quadrant IV. What quadrant is the point (-a, b) in? a) Quadrant I b) Quadrant II c) Quadrant III d) Quadrant IV
50. A robot starts at (0, 0). It moves 3 units East (positive x-direction) and then 4 units North (positive y-direction). What are its final coordinates? a) (4, 3) b) (-3, -4) c) (3, 4) d) (-4, 3)
51.