

Practice 11-3

The Distance and Midpoint Formulas

Find the midpoint of \overline{XY} .

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| 1. $X(8, 14)$ and $Y(2, 6)$ | 2. $X(11, 7)$ and $Y(3, 19)$ | 3. $X(-7, 6)$ and $Y(11, -2)$ |
| 4. $X(-3, -2)$ and $Y(7, 8)$ | 5. $X(-4, -1)$ and $Y(-8, 5)$ | 6. $X(6, 15)$ and $Y(4, 8)$ |
| 7. $X(-3, 5)$ and $Y(8, 9)$ | 8. $X(16, -8)$ and $Y(5, 9)$ | 9. $X(0, -15)$ and $Y(9, -15)$ |
| 10. $X(9\frac{1}{2}, 7)$ and $Y(7\frac{1}{2}, 5)$ | 11. $X(6, -2)$ and $Y(9, -1)$ | 12. $X(8, -13)$ and $Y(1, -7)$ |
| 13. $X(-7, -5)$ and $Y(-3, 16)$ | 14. $X(-7, -17)$ and $Y(11, 4)$ | 15. $X(11, 19)$ and $Y(6, -4)$ |
| 16. $X(3, -8)$ and $Y(-5, -13)$ | 17. $X(-2, 2)$ and $Y(6, -13)$ | 18. $X(-9, -4)$ and $Y(16, 12)$ |

Find the distance between each pair of points. If necessary, round to the nearest tenth.

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| 19. $(3, 0), (0, 4)$ | 20. $(3, 5), (12, 17)$ | 21. $(-4, 2), (2, -6)$ | 22. $(5, -7), (9, -2)$ |
| 23. $(4, 9), (15, 4)$ | 24. $(-7, 4), (2, -9)$ | 25. $(6, -1), (-5, 5)$ | 26. $(9, 8), (1, 12)$ |
| 27. $(13, -8), (2, 15)$ | 28. $(16, -7), (-2, -3)$ | 29. $(9, 15), (5, 12)$ | 30. $(7, 5), (-9, -6)$ |
| 31. $(-7, 15), (19, 2)$ | 32. $(9, -1), (11, -28)$ | 33. $(14, -29), (10, -25)$ | 34. $(2, -8), (8, -1)$ |
| 35. $(-11, 1), (7, 13)$ | 36. $(-1, 9), (19, 23)$ | 37. $(-9, 33), (13, 31)$ | 38. $(7, 2), (1, -2)$ |
39. \overline{AB} is a diameter of a circle. The coordinates of A are $(-1, 3)$, and the coordinates of B are $(-5, 9)$. Find the center of the circle.
40. \overline{CD} is a diameter of a circle. The coordinates of C are $(-2, -3)$, and the coordinates of D are $(-12, -5)$. Find the center of the circle.
41. A quadrilateral is a parallelogram if the diagonals bisect each other. Quadrilateral $EFGH$ has vertices $E(-4, 3)$, $F(2, 1)$, $G(4, 7)$, and $H(-2, 9)$. Find the midpoint of each diagonal. Is $EFGH$ a parallelogram? Explain.
42. A large building is on fire. Fire trucks from two different stations respond to the fire. One station is 1 mi east and 2 mi north of the fire. The other station is 2 mi west and 1 mi south of the fire. How far apart are the two fire stations?
43. The Anderson and McCready families decide to go to a concert together. The Andersons live 4 km west and 6 km north of the concert hall. The McCreadys live 5 km east and 2 km south of the concert hall. How far apart do the two families live?
44. According to the map, a ball field is 4 km west and 2 km north of where you live. A theater is 1 km east and 4 km south of where you live. How far apart are the ball field and the theater?