

**Midpoint Formula**

ES1

Example: Find the midpoint of the line segment with the endpoints (4, 1) and (2, -5).

$$\begin{aligned}\text{Midpoint} &= \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left( \frac{4 + 2}{2}, \frac{1 + (-5)}{2} \right) \\ &= (3, -2)\end{aligned}$$

Find the midpoint of the line segment with the given endpoints.

1) (5, 0), (1, 4)

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2) (-9, 3), (7, -8)

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3) (-2, 9), (-7, 7)

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4) (5, 10), (-3, 6)

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5) (-1, -6), (3, 0)

\_\_\_\_\_

6) (8, 1), (-2, -5)

\_\_\_\_\_

7) (-6, -10), (-2, -8)

\_\_\_\_\_

8) (4, -1), (-5, 9)

\_\_\_\_\_

9) (2, 3), (4, -7)

\_\_\_\_\_

10) (-9, -4), (-3, 6)

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Example: Find the midpoint of the line segment with the endpoints (4, 1) and (2, -5).

$$\begin{aligned} \text{Midpoint} &= \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) = \left( \frac{4 + 2}{2}, \frac{1 - 5}{2} \right) \\ &= (3, -2) \end{aligned}$$

Find the midpoint of the line segment with the given endpoints.

1) (5, 0), (1, 4)

$$\underline{(3, 2)}$$

2) (-9, 3), (7, -8)

$$\underline{\left(-1, -\frac{5}{2}\right) \text{ or } (-1, -2.5)}$$

3) (-2, 9), (-7, 7)

$$\underline{\left(-\frac{9}{2}, 8\right) \text{ or } (-4.5, 8)}$$

4) (5, 10), (-3, 6)

$$\underline{(1, 8)}$$

5) (-1, -6), (3, 0)

$$\underline{(1, -3)}$$

6) (8, 1), (-2, -5)

$$\underline{(3, -2)}$$

7) (-6, -10), (-2, -8)

$$\underline{(-4, -9)}$$

8) (4, -1), (-5, 9)

$$\underline{\left(-\frac{1}{2}, 4\right) \text{ or } (-0.5, 4)}$$

9) (2, 3), (4, -7)

$$\underline{(3, -2)}$$

10) (-9, -4), (-3, 6)

$$\underline{(-6, 1)}$$