

Midpoint Formula

Sheet 1

Example : Find the other endpoint of the line segment with the endpoint (3, 2) and the midpoint (5, -1).

$$\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \Rightarrow (5, -1) = \left(\frac{3 + x_2}{2}, \frac{2 + y_2}{2} \right)$$

$$\Rightarrow 5 = \left(\frac{3 + x_2}{2} \right), -1 = \left(\frac{2 + y_2}{2} \right) \Rightarrow 10 = 3 + x_2, -2 = 2 + y_2$$

$$(7, -4) = (x_2, y_2)$$

Find the other endpoint of the line segment with the given endpoint and midpoint.

1) Endpoint : (-6, -9), midpoint : (2, -4)

2) Endpoint : (-7, 8), midpoint : (0, 0)

3) Endpoint : (1, 3), midpoint : (-2, 5)

4) Endpoint : (6, -4), midpoint : (5, -1)

5) Endpoint : (0, -11), midpoint : (-3, -1)

6) Endpoint : (3, -8), midpoint : (1, -6)

7) Endpoint : (7, 10), midpoint : (0, 6)

8) Endpoint : (-2, 12), midpoint : (-4, 11)

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$$(7, -4) = (x_2, y_2)$$

Find the other endpoint of the line segment with the given endpoint and midpoint.

1) Endpoint : (-6, -9), midpoint : (2, -4)

(10, 1)

2) Endpoint : (-7, 8), midpoint : (0, 0)

(7, -8)

3) Endpoint : (1, 3), midpoint : (-2, 5)

(-5, 7)

4) Endpoint : (6, -4), midpoint : (5, -1)

(4, 2)

5) Endpoint : (0, -11), midpoint : (-3, -1)

(-6, 9)

6) Endpoint : (3, -8), midpoint : (1, -6)

(-1, -4)

7) Endpoint : (7, 10), midpoint : (0, 6)

(-7, 2)

8) Endpoint : (-2, 12), midpoint : (-4, 11)

(-6, 10)