

Midpoint Formula

Sheet 2

Example: The endpoints of the line segment are (9, -5) and (-7, 11); the midpoint is (m, 3). Find the value of the unknown.

$$\text{Midpoint} = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \Rightarrow (m, 3) = \left(\frac{9 - 7}{2}, \frac{-5 + 11}{2} \right)$$

$$\Rightarrow m = \left(\frac{9 - 7}{2} \right), 3 = \left(\frac{-5 + 11}{2} \right) \Rightarrow 2m = 9 - 7, 6 = -5 + 11$$

$$\mathbf{m = 1}$$

The endpoints and the

value of the unknown.

- 1) Endpoints : (-4, 7)
Midpoint : (-1, -

$$b = \underline{\hspace{2cm}}$$

- 3) Endpoints : (1, p),
Midpoint : (q, 7)

$$p = \underline{\hspace{2cm}}, q = \underline{\hspace{2cm}}$$

- 5) Endpoints : (k, 12)
Midpoint : (-3, 2)

$$k = \underline{\hspace{2cm}}$$

- 7) Endpoints : (-6, 8), (4, c)
Midpoint : (d, 5)

$$c = \underline{\hspace{2cm}}, d = \underline{\hspace{2cm}}$$

- 2) Endpoints : (x, -11), (7, -3)
Midpoint : (10, y)

$$x = \underline{\hspace{2cm}}, y = \underline{\hspace{2cm}}$$

- 4) Endpoints : (-2, 4), (-8, t)
Midpoint : (-5, -3)

- 6) Endpoints : (u, 1), (-4, -1)
Midpoint : (4, v)

$$u = \underline{\hspace{2cm}}, v = \underline{\hspace{2cm}}$$

- 8) Endpoints : (7, n), (m, 4)
Midpoint : (-2, 3)

$$m = \underline{\hspace{2cm}}, n = \underline{\hspace{2cm}}$$

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