

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 = _____

3) Endpoints : (1, p),

Midpoint : (q, 7)

p = _____, q = _____

5) Endpoints : (k, 12)

Midpoint : (-3, 2)

k = _____

7) Endpoints : (-6, 8), (4, c)

Midpoint : (d, 5)

c = _____, d = _____

8) Endpoints : (7, n), (m, 4)

Midpoint : (-2, 3)

m = _____, n = _____

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

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

$$\mathbf{m = 1}$$

The endpoints and the

the value of the unknown.

1) Endpoints : (-4, 7)

Midpoint : (-1, -

b = -9

3) Endpoints : (1, p),

Midpoint : (q, 7)

p = 9, q :

5) Endpoints : (k, 12)

Midpoint : (-3, 2)

k = 6

7) Endpoints : (-6, 8), (4, c)

Midpoint : (d, 5)

c = 2, d = -1

8) Endpoints : (7, n), (m, 4)

Midpoint : (-2, 3)

m = -11, n = 2

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