Missing Coordinates

Name _____

Score _____

MP:20

Example : The endpoints of the line segment (–1, –5) and (m, –3) and midpoint (–2, n). Find the value of variables.

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

$$\Rightarrow -2 = \left(\frac{-1 + m}{2}\right), \quad n = \left(\frac{-5 - 3}{2}\right)$$

$$\Rightarrow -4 = -1 + m, \quad n = -4 \quad \Rightarrow \quad \textbf{m = –3 ; n = –4}$$

Find the value of variable for the given endpoints and the midpoint of the line segments.

1) Endpoints : (–3, b) and (a, –7)
Midpoint : (–6, –4)

a = _____ b = _____

2) Endpoints : (s, 5) and (–10, –5)
Midpoint : (–5, t)

s = _____ t = _____

3) Endpoints : (–8, 4) and (2, v)
Midpoint : (u, 6)

u = _____ v = _____

4) Endpoints : (p, 2) and (3, 4)
Midpoint : (2, q)

p = _____ q = _____

5) Endpoints : (c, –7) and (–9, d)
Midpoint : (4, –7)

c = _____ d = _____

6) Endpoints : (6, 8) and (0, g)
Midpoint : (h, 3)

g = _____ h = _____

Missing Coordinates

Name _____

Score _____

Answer key

MP:20

Example : The endpoints of the line segment (–1, –5) and (m, –3) and midpoint (–2, n). Find the value of variables.

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

$$\Rightarrow -2 = \left(\frac{-1 + m}{2}\right), \quad n = \left(\frac{-5 - 3}{2}\right)$$

$$\Rightarrow -4 = -1 + m, \quad n = -4 \Rightarrow \textbf{m = –3 ; n = –4}$$

Find the value of variable for the given endpoints and the midpoint of the line segments.

1) Endpoints : (–3, b) and (a, –7)
Midpoint : (–6, –4)

a = **–9** b = **–1**

2) Endpoints : (s, 5) and (–10, –5)
Midpoint : (–5, t)

s = **0** t = **0**

3) Endpoints : (–8, 4) and (2, v)
Midpoint : (u, 6)

u = **–3** v = **8**

4) Endpoints : (p, 2) and (3, 4)
Midpoint : (2, q)

p = **1** q = **3**

5) Endpoints : (c, –7) and (–9, d)
Midpoint : (4, –7)

c = **17** d = **–7**

6) Endpoints : (6, 8) and (0, g)
Midpoint : (h, 3)

g = **–2** h = **3**