



# Missing Coordinates

Name \_\_\_\_\_

Score \_\_\_\_\_

MP:21

Example : The endpoints of the line segment  $(a, -4)$  and  $(7, b)$  and midpoint  $(4, -5)$ .  
Find the value of variables.

$$\text{Midpoint} = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \Rightarrow (4, -5) = \left( \frac{a + 7}{2}, \frac{-4 + b}{2} \right)$$

$$\Rightarrow 4 = \left( \frac{a + 7}{2} \right), \quad -5 = \left( \frac{-4 + b}{2} \right)$$

$$\Rightarrow 8 = 3 + a, \quad -10 = -4 + b \Rightarrow \mathbf{a = 5 ; b = -6}$$

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

1) Endpoints :  $(-2, q)$  and  $(p, -9)$

Midpoint :  $(5, -1)$

$p =$    $q =$

2) Endpoints :  $(6, 8)$  and  $(h, 4)$

Midpoint :  $(4, g)$

$g =$    $h =$

3) Endpoints :  $(c, -8)$  and  $(-1, d)$

Midpoint :  $(-2, -8)$

$c =$    $d =$

4) Endpoints :  $(7, u)$  and  $(-7, -7)$

Midpoint :  $(v, 0)$

$u =$    $v =$

5) Endpoints :  $(n, 5)$  and  $(6, m)$

Midpoint :  $(5, 7)$

$m =$    $n =$

6) Endpoints :  $(-1, t)$  and  $(s, 10)$

Midpoint :  $(-3, 8)$

$s =$    $t =$



# Missing Coordinates

Name \_\_\_\_\_

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## Answer key

MP:21

Example : The endpoints of the line segment (a, -4) and (7, b) and midpoint (4, -5).  
Find the value of variables.

$$\text{Midpoint} = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right) \Rightarrow (4, -5) = \left( \frac{a + 7}{2}, \frac{-4 + b}{2} \right)$$

$$\Rightarrow 4 = \left( \frac{a + 7}{2} \right), \quad -5 = \left( \frac{-4 + b}{2} \right)$$

$$\Rightarrow 8 = 3 + a, \quad -10 = -4 + b \Rightarrow \mathbf{a = 5 ; b = -6}$$

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

1) Endpoints : (-2, q) and (p, -9)

Midpoint : (5, -1)

p =

**12**

q =

**7**

2) Endpoints : (6, 8) and (h, 4)

Midpoint : (4, g)

g =

**6**

h =

**2**

3) Endpoints : (c, -8) and (-1, d)

Midpoint : (-2, -8)

c =

**-3**

d =

**-8**

4) Endpoints : (7, u) and (-7, -7)

Midpoint : (v, 0)

u =

**7**

v =

**0**

5) Endpoints : (n, 5) and (6, m)

Midpoint : (5, 7)

m =

**9**

n =

**4**

6) Endpoints : (-1, t) and (s, 10)

Midpoint : (-3, 8)

s =

**-5**

t =

**6**