Name:_____ Date:_____
Geometry R Mrs. DeNeef

Midpoint of a Line Segment

Midpoint:

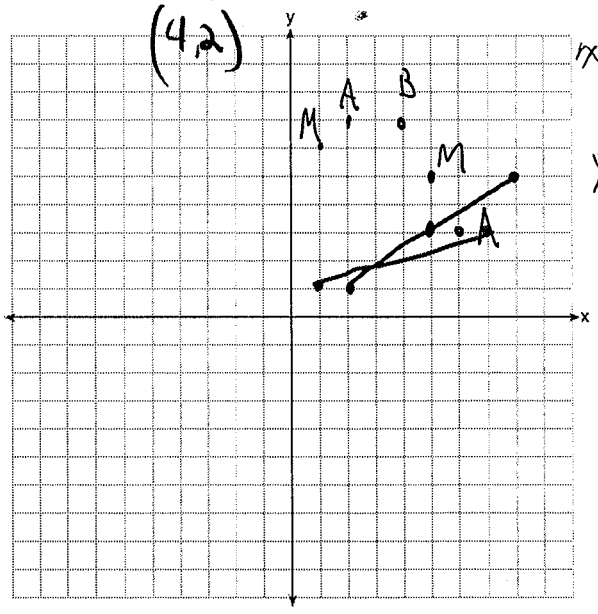
Midpoint Formula: $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

*It is the average between the x values and the y values.

Find the midpoint by graphing.

1. $A(2,1), B(8,5)$ (5,3)

2. $P(1,1), Q(7,3)$ (4,2)



3. $C(3,2), D(5,-2)$

x: $\frac{3+5}{2} = \frac{8}{2} = 4$

y: $\frac{2+-2}{2} = \frac{0}{2} = 0$

(4,0)

Find the midpoint of each segment with the given endpoints.

4. (0,8),(10,0)

$M = \left(\frac{0+10}{2}, \frac{8+0}{2}\right)$

$M = (5, 4)$

5. (−5,1),(5,−1)

$M = \left(\frac{-5+5}{2}, \frac{1+-1}{2}\right)$

$M = (0, 0)$

6. (−3,−5),(−1,−1)

$M = \left(\frac{-3+-1}{2}, \frac{-5+-1}{2}\right)$

$M = (-2, -3)$

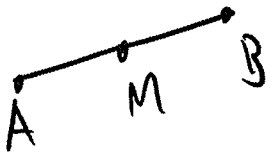
M is the midpoint of $\overline{AB}$. Find the coordinates of the third point when the coordinates of two of the points are given.

7. $A(2,7), M(1,6)$

(0,5)

8. $B(4,7), M(5,5)$

(6,3)



~~B(1,10)~~

$$M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$$

$$\frac{x_1 + x_2}{2} = 5 \qquad \frac{y_1 + y_2}{2} = 5$$

$$\frac{4 + x_2}{2} = 5 \quad (2) \qquad \frac{7 + y_2}{2} = 5 \quad (2)$$

$$4 + x_2 = 10 \qquad 7 + y_2 = 10$$

$$-4 \qquad -4$$

$$x_2 = 6 \qquad y_2 = 3$$

A (6,3)

HW: p.306 4-20 even