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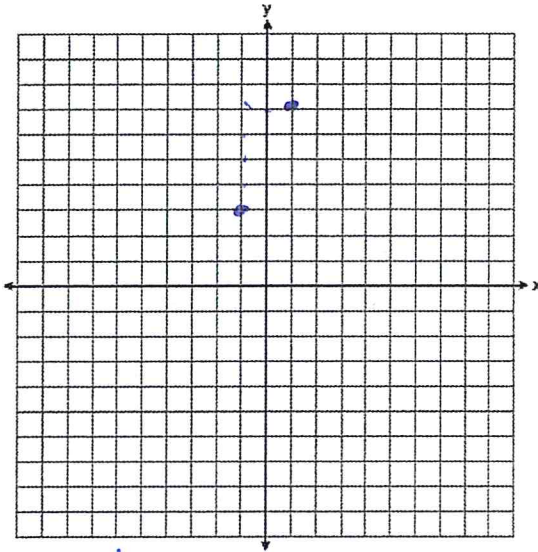
Date: \_\_\_\_\_  
Geometry

## Slope/Distance/Midpoint Review

For the following sets of coordinates, find:

- a) the slope
- b) the midpoint
- c) the distance

1. (-1,3) and (1,7)



$$m = \frac{\Delta y}{\Delta x}$$

$$m = \frac{4}{2}$$

$$m = 2$$

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

$$MP = \left( \frac{-1 + 1}{2}, \frac{3 + 7}{2} \right)$$

$$MP = (0, 5)$$

$$d = \sqrt{\Delta x^2 + \Delta y^2}$$

$$d = \sqrt{2^2 + 4^2}$$

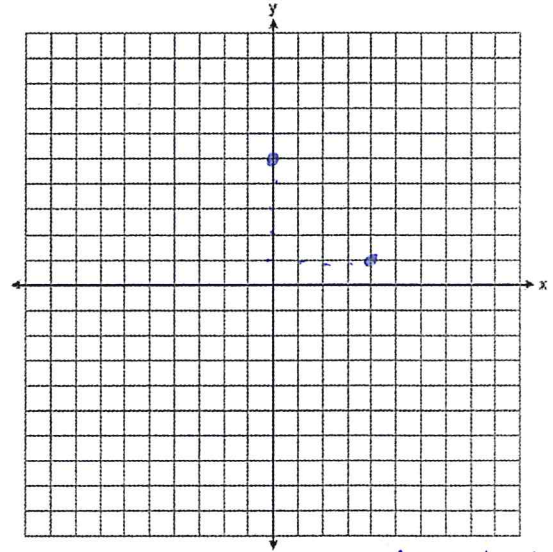
$$d = \sqrt{4 + 16}$$

$$d = \sqrt{20}$$

$$d = \sqrt{4} \sqrt{5}$$

$$d = 2\sqrt{5}$$

2. (4,1) and (0,5)



$$m = \frac{\Delta y}{\Delta x}$$

$$m = \frac{-4}{4}$$

$$m = -1$$

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

$$MP = \left( \frac{4 + 0}{2}, \frac{1 + 5}{2} \right)$$

$$MP = (2, 3)$$

$$d = \sqrt{\Delta x^2 + \Delta y^2}$$

$$d = \sqrt{4^2 + 4^2}$$

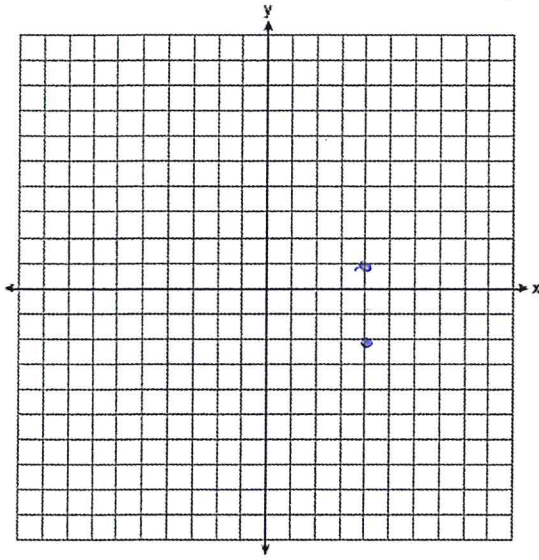
$$d = \sqrt{16 + 16}$$

$$d = \sqrt{32}$$

$$d = \sqrt{16} \sqrt{2}$$

$$d = 4\sqrt{2}$$

3. (4,-2) and (4,1)



$$m = \frac{\Delta y}{\Delta x}$$

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

$$m = \frac{3}{0}$$

$$MP = \left( \frac{4+4}{2}, \frac{-2+1}{2} \right)$$

No slope

$$MP = (4, -0.5)$$

$$d = \sqrt{\Delta x^2 + \Delta y^2}$$

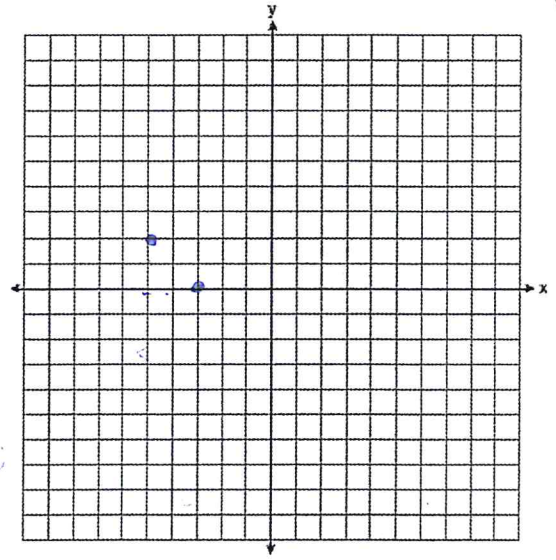
$$d = \sqrt{0^2 + 3^2}$$

$$d = \sqrt{0+9}$$

$$d = \sqrt{9}$$

$$d = 3$$

4. (-5,2) and (-3,0)



$$m = \frac{\Delta y}{\Delta x} \quad MP = \left( \frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$$

$$m = \frac{-2}{2}$$

$$MP = \left( \frac{-5+(-3)}{2}, \frac{2+0}{2} \right)$$

$$m = -1$$

$$MP = (-4, 1)$$

$$d = \sqrt{\Delta x^2 + \Delta y^2}$$

$$d = \sqrt{2^2 + 2^2}$$

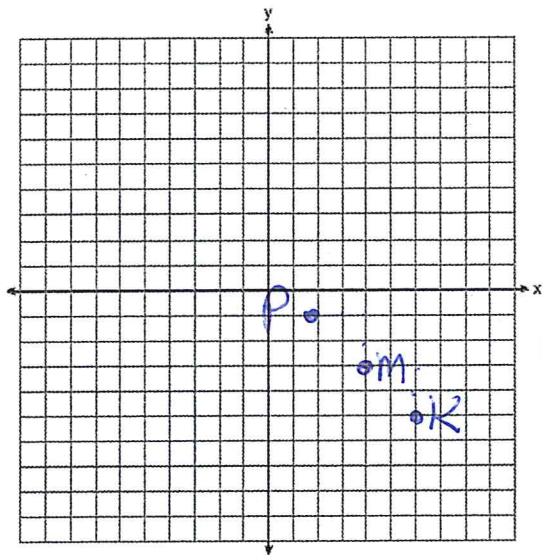
$$d = \sqrt{4+4}$$

$$d = \sqrt{8}$$

$$\sqrt{4} \sqrt{2}$$

$$d = 2\sqrt{2}$$

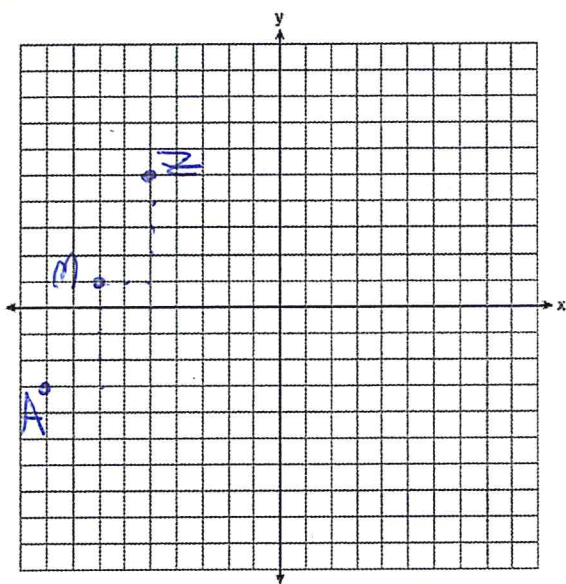
5. The midpoint  $M$  of  $\overline{KP}$  is  $(4, -3)$ . If the coordinates of  $K$  are  $(6, -5)$ , what are the coordinates of  $P$ ?



(2, -1)

up 2  
left 2

6. The midpoint  $M$  of  $\overline{AZ}$  is  $(-7, 1)$ . If the coordinates of  $Z$  are  $(-5, 5)$ , what are the coordinates of  $A$ ?

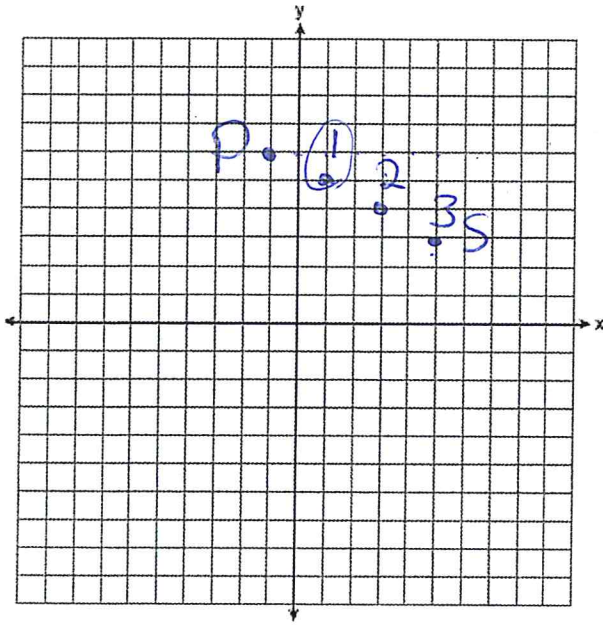


down 4  
left 2

$(-9, -3)$



7. What are the coordinates of the point on the directed line segment from  $P(-1,6)$  to  $S(5,3)$  that partitions the segment into a ratio of 1 to 2?



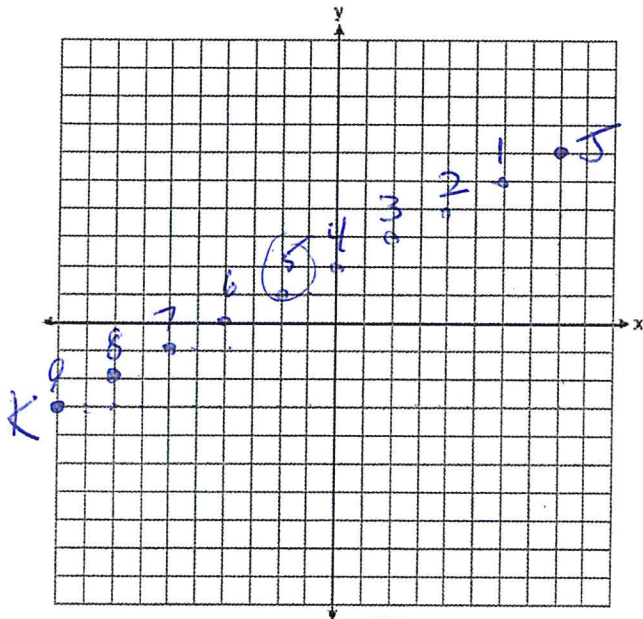
$$\frac{\Delta x}{p} \quad \frac{\Delta y}{p}$$

$$\frac{6}{3} \quad \frac{3}{3}$$

$$2 \quad 1$$

$(1, 4)$

8. Directed line segment  $JK$  has endpoints whose coordinates are  $J(8,6)$  and  $K(-10,-3)$ . Determine the coordinates of point  $O$  that divides the segment in the ratio 5 to 4.



$$\frac{\Delta x}{p} \quad \frac{\Delta y}{p}$$

$$\frac{18}{9} \quad \frac{9}{9}$$

$$2 \quad 1$$

$(-2, 6)$