

Midpoint Investigation

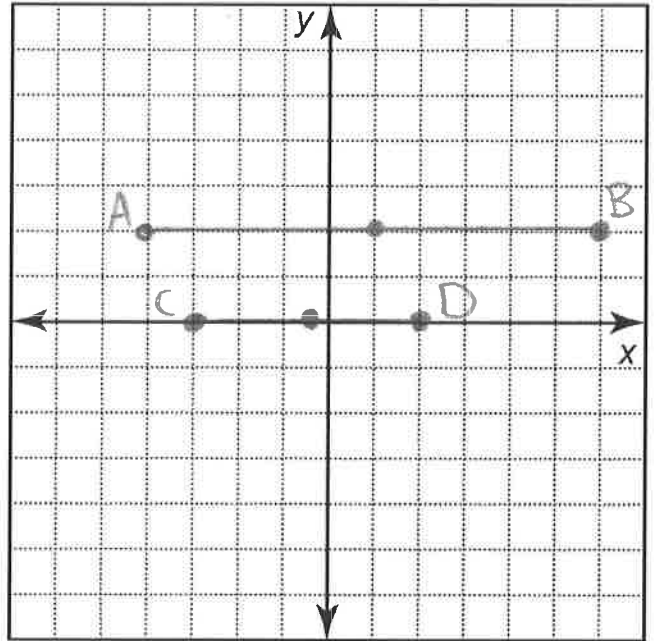
1. Using the grid provided, plot the line segments defined by each pair of endpoints. Label the endpoints with their coordinates.

- a) $A(-4,2)$ and $B(6,2)$ b) $C(-3,0)$ and $D(2,0)$

2. What do these two line segments have in common?

They are both horizontal

3. Determine the coordinates of the midpoint of each segment. Label each midpoint with its coordinates.



Mipoint of AB $(1, 2)$

Mipoint of CD $(-\frac{1}{2}, 0)$

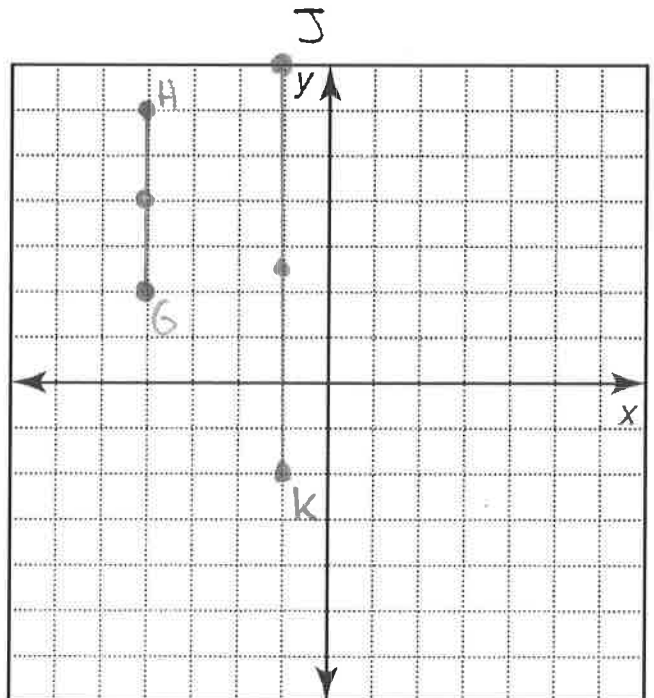
4. Using the grid provided, plot the line segments defined by each pair of endpoints. Label the endpoints with their coordinates.

- a) $G(-4,2)$ and $H(-4,6)$ b) $J(-1,7)$ and $K(-1,-2)$

5. What do these two line segments have in common?

They are both vertical

6. Determine the coordinates of the midpoint of each segment. Label each midpoint with its coordinates.

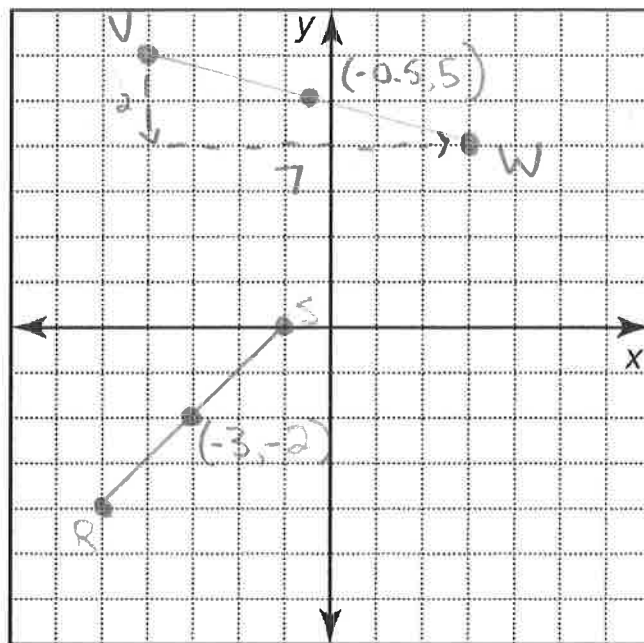


Mipoint of GH $(-4, 4)$

Mipoint of JK $(-1, 2.5)$

7. Using the grid provided, plot the line segments defined by each pair of endpoints. Label the endpoints with their coordinates.

- a) R (-5,-4) and S (-1,0) b) V (-4,6) and W(3,4)



8. Determine the coordinates of the midpoint of each segment. Label each midpoint with its coordinates.

Mipoint of RS $(-3, -2)$

Mipoint of VW $(-0.5, 5)$

9. Describe how you calculated the coordinates of the midpoints for RS and VW:

The run from R to the midpoint is half of the run between R and S. Similarly, the rise from R to the midpoint is half of the rise between R and S.

∅ The x-coordinate of the midpoint is the average of the x-coordinates of the endpoints.

The same rule applies for the y-coordinate.

Mipoint Formula:

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