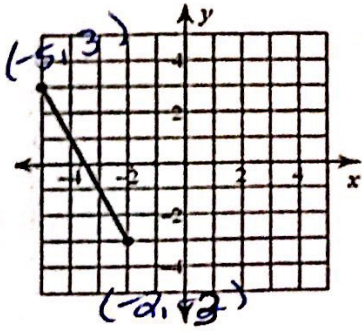


Key Ideas	Notes	1.7 Midpoint & Distance
<p>Distance Formula</p>	<p>Used to find the distance between two points (x_1, y_1) and (x_2, y_2)</p> <p>Formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$</p>	
<p>Examples:</p> <p>1. Find the distance between the two points on the graph.</p> <p>2. Find AB when $A(-4, 1)$ and $B(3, -1)$</p> <p style="margin-left: 40px;">x_1, y_1 x_2, y_2</p>	<div style="display: flex; align-items: center;"> <div style="flex: 1;"> <p>1. $(-5, 3)$ $(-2, -3)$ x_1, y_1 x_2, y_2</p> $d = \sqrt{(-2 - (-5))^2 + (-3 - 3)^2}$ $= \sqrt{3^2 + (-6)^2}$ $= \sqrt{9 + 36}$ $= \sqrt{45} \approx 6.7$ </div> <div style="flex: 1; text-align: center;">  </div> </div> <p>2.</p> $d = \sqrt{(3 - (-4))^2 + (-1 - 1)^2}$ $= \sqrt{7^2 + (-2)^2}$ $= \sqrt{49 + 4}$ $= \sqrt{53} \approx 7.28$	
<p>Midpoint Formula</p>	<p>Used to find the midpoint between two points (x_1, y_1) and (x_2, y_2)</p> <p>Formula: $MP = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$ (x_m, y_m)</p>	
<p>1. \overline{AB} has endpoints -4 and 9. What is the coordinate of its midpoint?</p> <p>2. Find the midpoint of \overline{GH} given: $G(7, -5)$ and $H(9, -1)$ x_1, y_1 x_2, y_2</p> <p>3. Find the midpoint of \overline{AB} given: $A(-7, 4)$ and $B(3, -4)$ x_1, y_1 x_2, y_2</p>	<p>1. -4 ——— 9 $\frac{-4 + 9}{2} = \frac{5}{2}$</p> <p>2. $\left(\frac{7+9}{2}, \frac{-5+(-1)}{2} \right) \rightarrow \left(\frac{16}{2}, \frac{-6}{2} \right) \rightarrow (8, -3)$</p> <p>3. $\left(\frac{-7+3}{2}, \frac{4+(-4)}{2} \right) \rightarrow \left(\frac{-4}{2}, \frac{0}{2} \right) \rightarrow (-2, 0)$</p>	