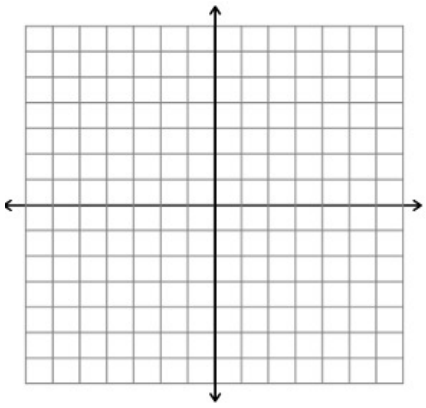
Midpoint & Distance Practice WS Name: _____Per:_____

Midpoint

1. Given two points, A(-2, 6) and B(-2,-8). Find the midpoint of the line segment AB.

2. Given two points, M(3,-3) and N(-5,1). Find the midpoint of the line segment MN.



Midpoint

3. Given two points, K(-123, 62) and Z(52,-57). Find the midpoint of the line segment KZ.

Midpoint Rule in words:

Midpoint Formula:

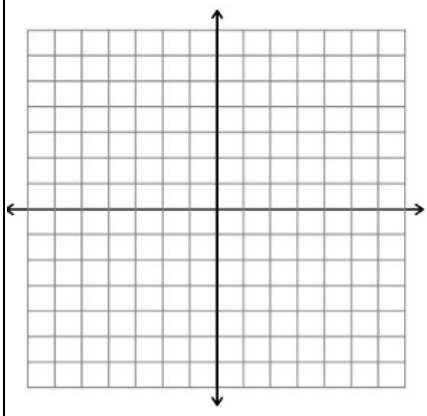
4. Without graphing, find the midpoint of the following line segments.
   - **a.** J(-20,20) and K(36, 81)
   - **b.** P(13, 12) and Q(103, -10)

5. Given the midpoint and an endpoint of a segment, find the other endpoint.

Endpoint: (−9, −1), midpoint: (8, 14)

Distance/Length

6. Given two points, E(-2, 3) and M(7, 5). Find the length of the line segment EM.



Distance/Length

7. Given two points, M(-123, 62) and J(52,-57). Find the length of the line segment MJ.

Distance/Length in words:

8. Find the distance between the points:
   K(-9, -3) and J(-4, 4)

9. Find the distance between the points:
   J(29, -13) and S(14, -4)

Slope of Line

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

Equation from 2 Points:

Step 1: Find the slope (m)
Step 2: Pick one of the two points, plug in m, x, and y into $y = mx + b$
Step 3: Solve for b
Step 4: Write equation

Parallel Lines
Parallel lines have the _____ slope

Perpendicular Lines
Perpendicular lines have _____ _____ slope

Be sure lines are in slope-intercept form!!

10. Write the slope-intercept equation **parallel** to $y = -4x + 2$ and through (-2, 5).

11. Write the slope-intercept equation of the line that is **perpendicular** to $y = -4x + 2$ and through (-8, 5).

12. Write the slope-intercept equation **parallel** to 3y = 2x – 3 and through (-3, 4).

13. Write the slope-intercept equation of the line that is **perpendicular** to 9x + 3y = 8 and through (-1, -4).

14. Find the length, slope, and midpoint of each segment forming the shape.

	Length	Slope	Midpoint
AB			
BC			
CD			
DE			
EA