No Bell Ringer

Grab Week #13-14 Packet

Week #12 Packet Due today

Feb 18-8:26 AM

Find the midpoint of (4, -3) and (-2, 9)

(x_1, y_1) (x_2, y_2)

$\left(\frac{x_2-x_1}{2}, \frac{y_2-y_1}{2}\right)$

$\left(\frac{-2-4}{2}, \frac{9-(-3)}{2}\right)$

$\left(\frac{-6}{2}, \frac{12}{2}\right) = \boxed{(-3, 6)}$

Find the distance between (4, -3) and (-2, 9)

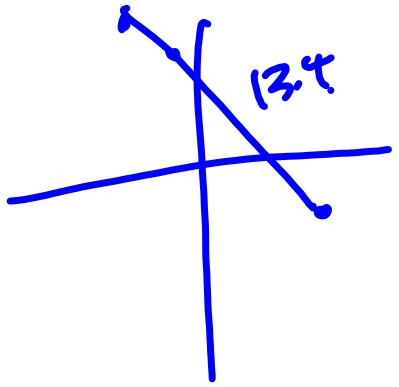
(x_1, y_1) (x_2, y_2)

$$\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$\sqrt{(-2-4)^2 + (9+3)^2}$$

$$\sqrt{36 + 144}$$

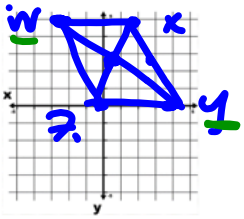
$$\sqrt{180} = 13.41$$



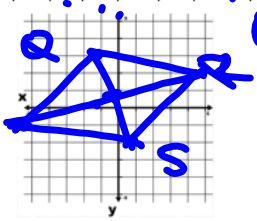
Coordinate Proofs

Find the coordinates of the intersection of the diagonals of the parallelogram with the given vertices.

1. $W(-2,5), X(2,5), Y(4,0), Z(0,0)$

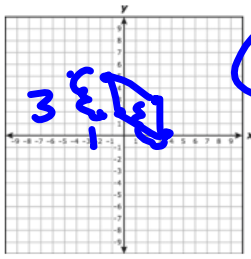


2. $Q(-1,3), R(5,2), S(1,-2), T(-5,-1)$

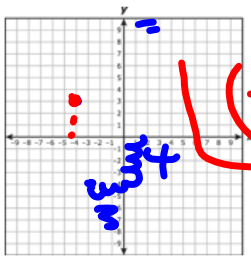


Three vertices of $\square DEFG$ are given. Find the coordinate of the remaining vertex.

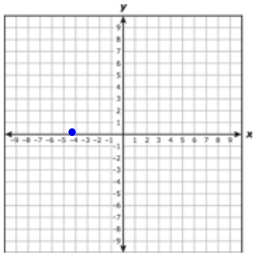
3. $D(0,2), E(-1,5), G(4,0)$



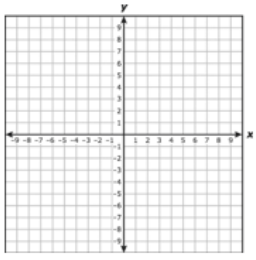
4. $D(-2,-4), F(0,7), G(1,0)$



5. $D(-4,-2), E(-3,1), F(3,3)$



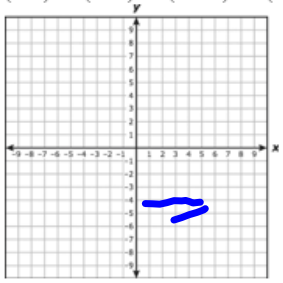
6. $E(-1,4), F(5,6), G(8,0)$



Graph the quadrilateral with the given vertices in a coordinate plane. Then show that the quadrilateral is a parallelogram by using the assigned properties and theorems.

Slope: $m = \frac{y_2 - y_1}{x_2 - x_1}$ Length: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ Midpoint: $\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

7. $A(0,1), B(4,4), C(12,4), D(8,1)$



Definition of a parallelogram

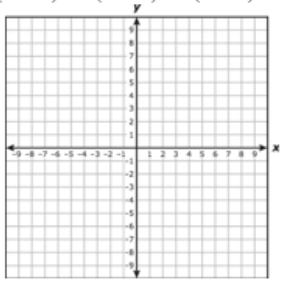
Slope of $\overline{AB}$ _____

Slope of $\overline{CD}$ _____

Slope of $\overline{BC}$ _____

Slope of $\overline{AD}$ _____

8. $E(-3,0), F(-3,4), G(3,-1), H(3,-5)$



Converse of both pairs of opposite sides congruent

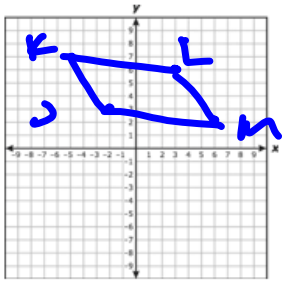
Length of $\overline{EF}$ _____

Length of $\overline{FG}$ _____

Length of $\overline{GH}$ _____

Length of $\overline{EH}$ _____

9. $J(-2,3), K(-5,7), L(3,6), M(6,2)$



Converse of one pair of opposite sides both Parallel and congruent

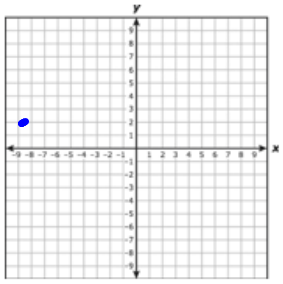
Slope of $\overline{JK}$ _____

Slope of $\overline{LM}$ _____

Length of $\overline{JK}$ _____

Length of $\overline{LM}$ _____

10. $N(-5,0), P(0,4), Q(3,0), R(-2,-4)$



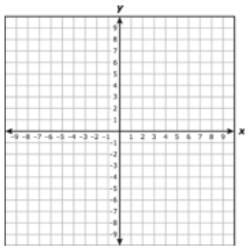
Converse of diagonals bisect each other

Midpoint of $\overline{PR}$ _____

Midpoint of $\overline{NQ}$ _____

Decide whether $\square JKLM$ is a rectangle, a rhombus, or a square. Justify your answers.

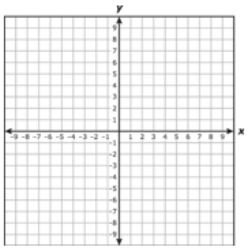
11. $J(-4,2), K(0,3), L(1,-1), M(-3,-2)$



Slope of $\overline{JK}$ _____
Slope of $\overline{JM}$ _____
Slope of $\overline{JL}$ _____
Slope of $\overline{KM}$ _____

Type of Parallelogram: _____
Justification: _____
_____

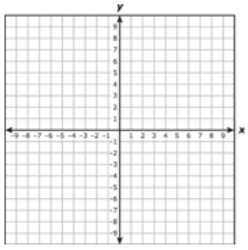
12. $J(-2,7), K(7,2), L(-2,-3), M(-11,2)$



Slope of $\overline{JK}$ _____
Slope of $\overline{JM}$ _____
Slope of $\overline{JL}$ _____
Slope of $\overline{KM}$ _____

Type of Parallelogram: _____
Justification: _____
_____

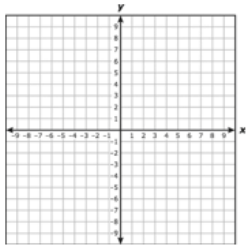
13. $J(3,1), K(3,-3), L(-2,-3), M(-2,1)$



Slope of $\overline{JK}$ _____
Slope of $\overline{JM}$ _____
Slope of $\overline{JL}$ _____
Slope of $\overline{KM}$ _____

Type of Parallelogram: _____
Justification: _____
_____

14. $J(5,2), K(2,5), L(-1,2), M(2,-1)$



Slope of $\overline{JK}$ _____
Slope of $\overline{JM}$ _____
Slope of $\overline{JL}$ _____
Slope of $\overline{KM}$ _____

Type of Parallelogram: _____
Justification: _____
_____