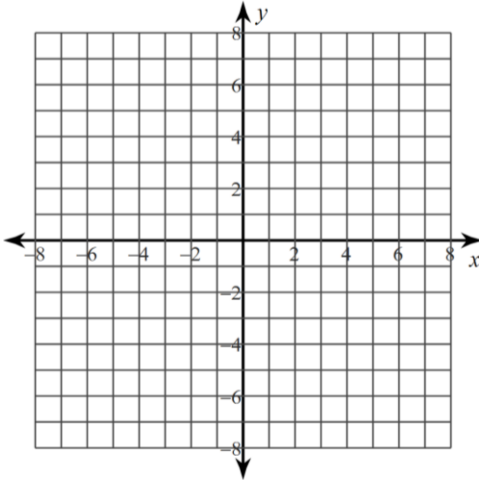


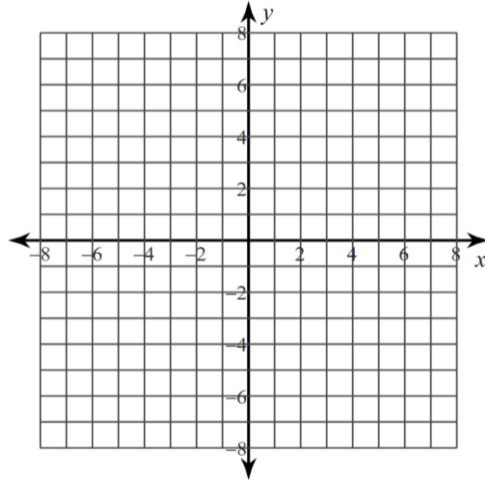
6.6.D1 - QUADRILATERALS IN THE COORDINATE PLANE

Graph the quadrilateral described. Determine the most precise name for the quadrilateral: rectangle, rhombus, square, kite, or trapezoid AND justify your reasoning. Show all work on a separate sheet of paper.

1. $F(0, 0), G(5, 5), H(8, 4), I(7, 1)$



2. $W(0, -6), X(-4, 2), Y(4, 6), Z(8, -2)$



Use the given information to determine if quadrilateral $ABCD$ can best be described as a rectangle, square, rhombus, trapezoid, or none of these. Explain your reasoning.

3. Side lengths: $AB = \sqrt{20}, BC = \sqrt{45}, CD = \sqrt{20}, DA = \sqrt{45}$

Slope of $\overline{AB} = -2$ Slope of $\overline{BC} = \frac{1}{2}$

Slope of $\overline{CD} = -2$ Slope of $\overline{DA} = \frac{1}{2}$

4. Side lengths: $AB = \sqrt{13}, BC = \sqrt{13}, CD = \sqrt{13}, DA = \sqrt{13}$

Slope of $\overline{AB} = -\frac{3}{2}$ Slope of $\overline{BC} = 1$

Slope of $\overline{CD} = -\frac{3}{2}$ Slope of $\overline{DA} = 1$

5. Side lengths: $AB = \sqrt{13}, BC = \sqrt{17}, CD = \sqrt{52}, DA = \sqrt{10}$

Slope of $\overline{AB} = \frac{2}{3}$ Slope of $\overline{BC} = -\frac{1}{4}$

Slope of $\overline{CD} = \frac{2}{3}$ Slope of $\overline{DA} = -3$

6. Side lengths: $AB = \sqrt{14}, BC = \sqrt{14}, CD = \sqrt{14}, DA = \sqrt{14}$

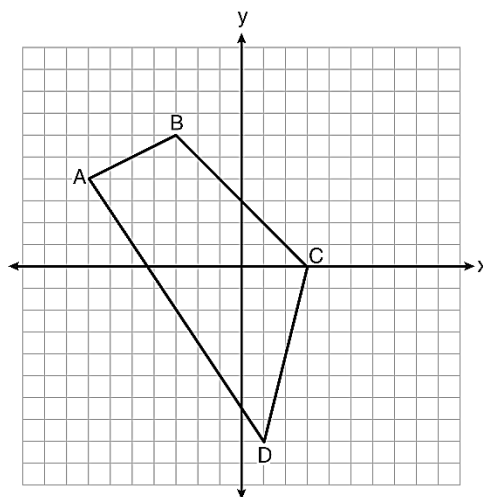
Slope of $\overline{AB} = \frac{1}{8}$ Slope of $\overline{BC} = -8$

Slope of $\overline{CD} = \frac{1}{8}$ Slope of $\overline{DA} = -8$

7. The coordinates of the vertices of parallelogram $ABCD$ are $A(-3, 2)$, $B(-2, -1)$, $C(4, 1)$, & $D(3, 4)$. The slopes of which line segments could be calculated to show that $ABCD$ is a rectangle?
- A) \overline{AB} & \overline{DC} B) \overline{AB} & \overline{BC} C) \overline{AD} & \overline{BC} D) \overline{AC} & \overline{BD}
8. Parallelogram $ABCD$ has coordinates $A(0, 7)$ & $C(2, 1)$. Which statement would prove that $ABCD$ is a rhombus?
- A) The midpoint of \overline{AC} is $(1, 4)$.
- B) The length of \overline{BD} is $\sqrt{40}$.
- C) The slope of \overline{BD} is $\frac{1}{3}$.
- D) The slope of \overline{AB} is $\frac{1}{3}$.

Quadrilateral $ABCD$ with vertices $A(-7, 4)$, $B(-3, 6)$, $C(3, 0)$, & $D(1, -8)$ is graphed on the set of axes (shown). Quadrilateral $MNPQ$ is formed by joining M , N , P , and Q , the midpoints of \overline{AB} , \overline{BC} , \overline{CD} , & \overline{AD} respectively.

9. Show that quadrilateral $MNPQ$ is a parallelogram.



10. Show that quadrilateral $MNPQ$ is *not* a rhombus.