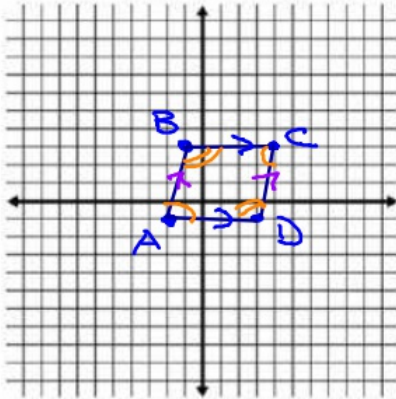


**Day 7 IN CLASS**

**Secondary 2 Honors - Number Systems & Lines Unit**

For each Quadrilateral ABCD determine the properties of a parallelogram ABCD has (if any) & determine the properties of a parallelogram it does NOT have (if any). Then use that information to decide if ABCD is a parallelogram or not. Show ALL your work! This still counts as an informal coordinate proof ☺

1. A(-2, -1), B(-1, 3), C(4, 3), D(3, -1)



Parallelogram properties ABCD has:

$$1) \begin{cases} \overline{BC} \parallel \overline{AD} \\ \overline{AB} \parallel \overline{CD} \end{cases} \quad \begin{cases} \angle B \cong \angle D \\ \angle A \cong \angle C \end{cases}$$

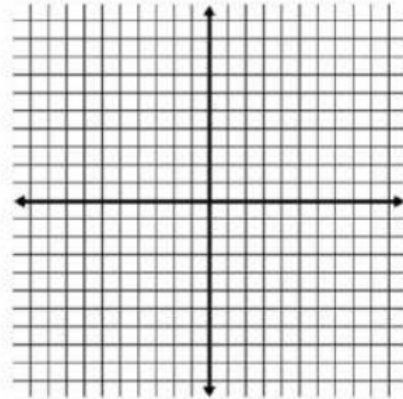
$$2) \begin{cases} \overline{BC} \cong \overline{AD} \\ \overline{AB} \cong \overline{CD} \end{cases}$$

Parallelogram properties ABCD has NOT:

~~X~~  
~~≠~~

Parallelogram? YES / NO (circle one)

2. A(0, 8), B(-1, 2), C(5, 6), D(6, 11)



Parallelogram properties ABCD has:

Parallelogram properties ABCD has NOT:

Parallelogram? YES / NO (circle one)

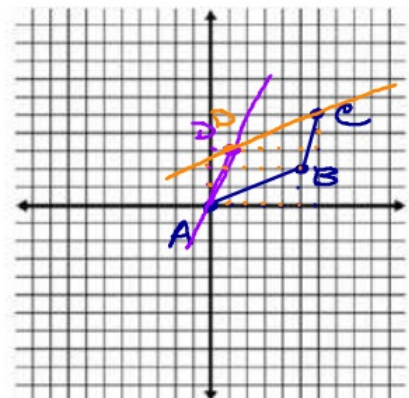
3. Jaxson is surveying for a new parking lot shaped like a parallelogram. She knows that three of the vertices of parallelogram ABCD are A(0,0), B(5,2), and C(6,5). Find the coordinates of point D and sketch parallelogram ABCD on the accompanying set of axes. Justify mathematically that the figure you have drawn is a parallelogram. (i.e. SHOW ALL OF YOUR WORK!!!!)

$$\text{slope } \overline{CB} \cong \overline{AD}$$

$$m = \frac{2}{5} \quad \frac{2}{5}$$

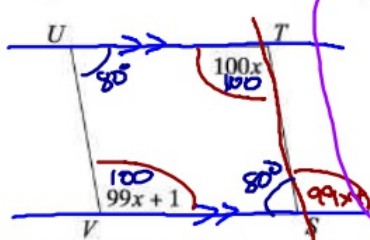
$$\overline{AB} \cong \overline{DC}$$

$$\frac{2}{5} \quad \frac{2}{5}$$



For #4-6, Find the value of X then find the value of each missing angle.

4.

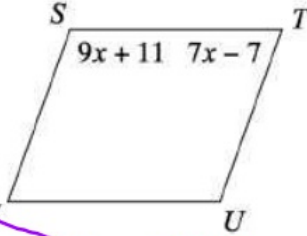


$$\begin{aligned} 100x &= 99x+1 \\ -99x & \quad -99x \\ \hline x &= 1 \end{aligned}$$

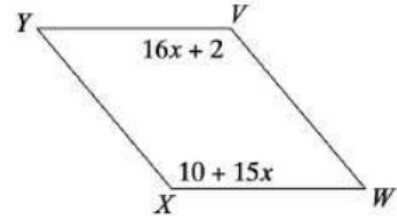
$$\begin{aligned} 100+100+?+? &= 360 \\ ?+? &= 160 \\ 2? &= 160 \\ ? &= 80 \end{aligned}$$

$$\begin{aligned} m\angle S &= \\ m\angle T &= \\ m\angle V &= \\ m\angle U &= \end{aligned}$$

5.



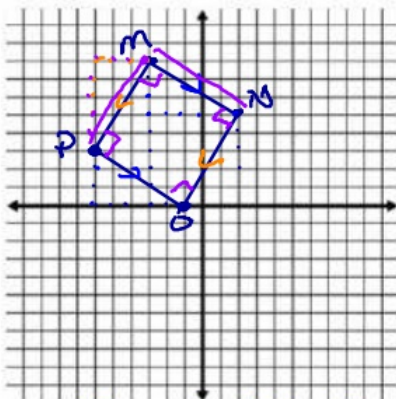
6.



For #7-8, Find the slope and the length of all 4 sides in the following to quadrilaterals. Then use this information to classify the quadrilateral as specifically as possible. Make sure to label and organize your work as well as writing an explanation of how that work helps you classify the shape based on its characteristics. Options for classification: Quadrilateral, parallelogram, rectangle, rhombus, square, kite, trapezoid, or isosceles trapezoid

7.  $M(-3, 8), N(2, 5), O(-1, 0), P(-6, 3)$

8.  $W(1, 3), X(2, 0), Y(1, -3), Z(0, 0)$



$$\begin{aligned} \text{slope } \overline{MN} &= -\frac{5}{5} & \overline{OP} &= -\frac{5}{5} \\ \text{slope } \overline{MP} &= \frac{5}{5} & \overline{ON} &= \frac{5}{5} \\ \text{Parallelogram.} \\ \text{Opp. Rec. } & -\frac{5}{5} \perp \frac{5}{5} & & \angle 90^\circ \\ \text{Square. Rectangle.} \\ \text{length } \overline{MP} &= & \overline{MN} &= \\ 5^2+3^2=c^2 & & 3^2+5^2=c^2 & \\ 25+9=c^2 & & 9+25=c^2 & \\ \sqrt{34}=c & & \sqrt{34}=c & \end{aligned}$$

