Geometry Regents Lomac 2015-2016 Date 3/15 due 3/16	Coordinate Plane: Polygon Area, 8.6R Perimeter, and Proof

**Name** _____ **Per_____**

LO: I can connect use midpoint, distance, and slope to prove things about polygons and to find their areas and perimeters.

☐ **DO NOW**   On the back of this packet

☐ **(1)**

Marquis wants to know if $\overline{AB} \parallel \overline{CD}$ in quadrilateral ABCD with

points A(1,4) B(3,6) C(6,3) and D(4,1)

To determine this, he should:

      (1) Find the slope of BA and DA
      (2) Find the slope of BA and DC
      (3) Find the length of BA and DC
      (4) Find the midpoint of BA and DC.

☐ **(2)**
calculator
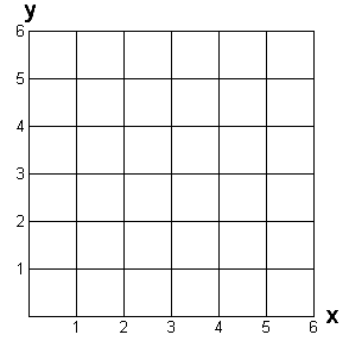
Do the calculations necessary to determine the answer to Marquis' question in problem number 1. Show work and explain.

☐ **(3)**

Andre wants to know if $\overline{AB} \perp \overline{CD}$ in quadrilateral ABCD with points A(1,4) B(3,6) C(6,3) and D(4,1)

To determine this, he should:

      (1) Find the slope of BA and DA
      (2) Find the slope of BA and DC
      (3) Find the length of BA and DC
      (4) Find the midpoint of BA and DC.

☐ **(4)**
calculator

Do the calculations necessary to determine the answer to Andre's question in problem number 3. Show work and explain.

☐ (5)   Andino wants to know if $\overline{AB} \cong \overline{CD}$ in quadrilateral ABCD with

points A(1,4) B(3,6) C(6,3) and D(4,1)

To determine this, she should:

       (1)   Find the slope of BA and DA
       (2)   Find the slope of BA and DC
       (3)   Find the length of BA and DC
   (4)   Find the midpoint of BA and DC.
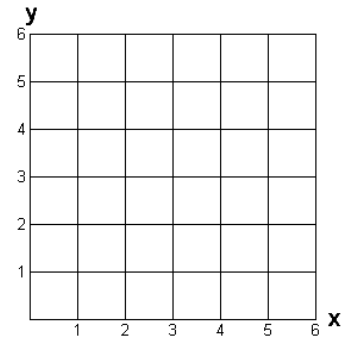
☐ (6)   Do the calculations necessary to determine the answer to Andino's question in problem number 5. Show work and
calculator   explain.

☐ (7)   Tanya wants to know if quadrilateral ABCD with points A(1,4) B(3,6) C(6,3) and D(4,1) is a rectangle

She already knows the information found to answer the questions Marquis, Andre, and Andino had. She will need
to use the information from _____ and will also need to find:

_____

_____

_____

☐ (8)   Do the calculations necessary to determine the answer to Tanya's question in problem number 7. Show work and
calculator   explain.

☐ **(9)** Point C lies $\frac{2}{7}$ of the way along directed segment $\overline{BA}$. If the coordinates of point A are (2,8) and the coordinates of point B are (30, 50), what are the coordinates of point C?
calculator
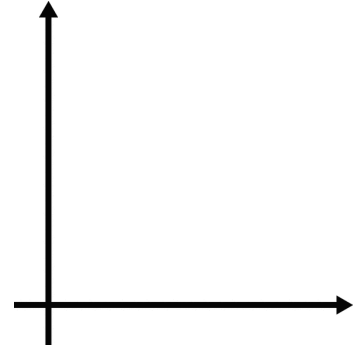
☐ **(10)** Find an equation of the line that is perpendicular to the line 7y + 4x = 3 and passes through the point (–4,–7)
calculator
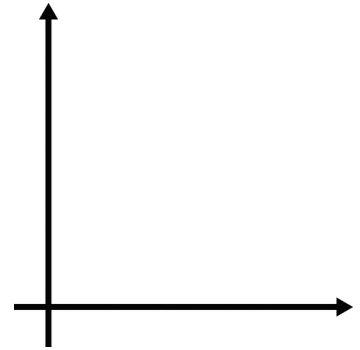
(11) Write the equation of each circle below in standard form:

calculator

    (a) has center (-3,2) and radius 11

    (b) has a diameter whose endpoints are (5,3) and (–1, 7)

(12)

calculator

24 In the coordinate plane, the vertices of $\triangle RST$ are $R(6,-1)$, $S(1,-4)$, and $T(-5,6)$. Prove that $\triangle RST$ is a right triangle. State the coordinates of point P such that quadrilateral $RSTP$ is a rectangle. Prove that your quadrilateral $RSTP$ is a rectangle. [The use of the set of axes below is optional.]