Name __Key__ Date _____ Pd __

CYU 1.4 Perimeter, Area, & Polygons

| CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Classifying polygons	1a	1b	6
Convex vs. Concave	1a	1b	2
Perimeter	2a, 4a	2b, 4b	5, 6c, 8
Area	3	7	4c, 6c
Distance Formula on a coordinate plane	3	2b, 4	2a, 5

1. Classify the polygon by the number of sides. Tell whether it is convex or concave.

   a. 4 → quadrilateral
   concave
   not regular

   b. 6 → hexagon
   Concave
   not regular
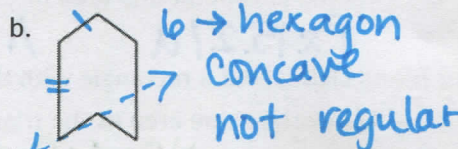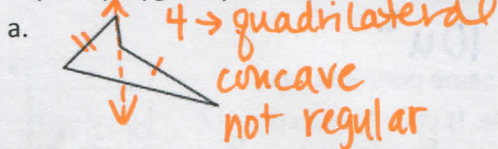
2. Find the perimeter of the polygon with the given vertices. State if the figure is convex or concave.

   a.
   L(1, 4)
   N(2, 0)
   P(−1, −2)
   M(4, 0)
   $P \approx 16.93u$ concave
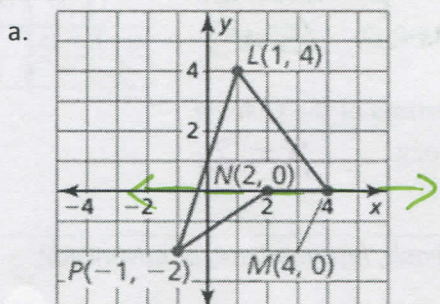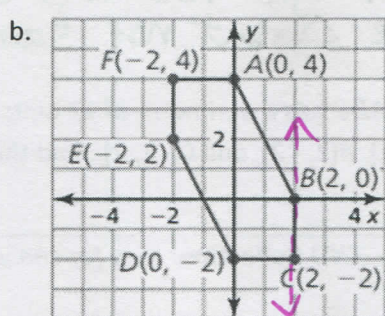
   b.
   F(−2, 4)   A(0, 4)
   E(−2, 2)
   B(2, 0)
   D(0, −2)   C(2, −2)
   $P \approx 16.94u$ convex

3. Find the area of the polygon with the given vertices: **W(0,0), X(0, 3), Y(- 3, 3), Z(- 3, 0).**

   $A = 9u^2$

4. Use the diagram provided to find the following:
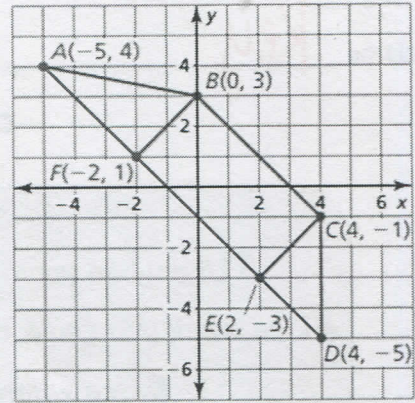
   a. perimeter of $\triangle CDE$.

   $P \approx 9.66u$

   b. Find the perimeter of quadrilateral ABCD.

   $P \approx 27.49u$

   c. Find the area of the quadrilateral ABCD.

   $A = 26u^2$

Graph showing points $A(-5, 4)$, $B(0, 3)$, $C(4, -1)$, $D(4, -5)$, $E(2, -3)$, $F(-2, 1)$.

5. Determine which points are the remaining vertices of a rectangle with a perimeter of 14 units.

   A. $A(2, -2)$ and $B(2, -1)$
   B. $C(-2, -2)$ and $D(-2, 2)$
   C. $E(-2, -2)$ and $F(2, -2)$ ⟵ circled
   D. $G(2, 0)$ and $H(-2, 0)$

6. The lines $y_1 = 2x - 6$, $y_2 = -3x + 4$, and $y_3 = -\frac{1}{2}x + 4$ are the sides of a right triangle.

   a. Use slopes to determine which sides are perpendicular.

 $y_1 \perp y_3$

   b. Find the vertices of the triangle.

   $(0, 4); (4, 2); (2, -2)$

   c. Find the perimeter and area of the triangle.

   $P \approx 15.27u$ $A = 10u^2$

7. Your friend claims that a rectangle with the same perimeter as $\triangle QRS$ will have the same area as the triangle. Is your friend correct? Explain your reasoning. NO, $\triangle$: $P = 12u$ & $A = 6u^2$ A rectangle 1×5 has same perimeter as the $\triangle$ but not same area ($5u^2$)

Graph showing points $Q(-2, 1)$, $R(-2, -2)$, $S(2, -2)$.
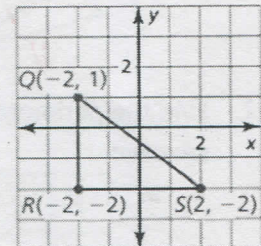
8. Triangle ABC has a perimeter of 12 units. The vertices of the triangle are $A(x, 2)$, $B(2, -2)$, and $C(-1, 2)$. Find the value of x. $x = 2$

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!
How confident are you with the skills this CYU covered? Circle the score you would give yourself.

| 1 2 | 3 4 5 | 6 7 | 8 |
| Basic | Intermediate | Advanced | Solved ALL! |