Proving Type of Quadrilateral Based on Slope and Distance SLOPE FORMULA: $\frac{y_2-y_1}{x_2-x_1}$

Quadrilateral ABCD has vertices A(2,1), B(4,5) C(10,1) and D(8,-3). You may graph ABCD on your half-sheet of graph paper to view it.
In the grid at the right:

1) Name ABCD's four sides
2) Use slope formula to find the slopes of the four sides.
3) Simplify fractions.

Sides	$\overline{AB}$			
Slopes	$\frac{5-1}{4-2}$ $\frac{4}{2}$			
Simplify	2			

What do the slopes tell you about the quadrilateral? Explain:

Use flowchart

WXYZ is a quadrilateral. Make another table at the right.
WXYZ's vertices are W(-2,5), X(2,6), Y(5,2), Z(-3,0).
Graph WXYZ on your half-sheet.
In the table at the right

1) Name WXYZ's four sides.
2) Find the slopes (use formula)
3) Simplify fractions.

How many slopes are the same? What kind of Quadrilateral must WXYZ be? Why?

Another table at the right:
Now try PERL for P(-1,8), E(3,7), R(4,3), L(0,4).
Do all of the same work again.
Is PERL a parallelogram? Why?

If it is a rectangle or square, the slopes of PE and ER would be perpendicular. Is it?

Is it a rhombus? If so, PERL is equilateral. You can Use the distance formula (the Pyth Th strategy) to determine if PE and ER have the same lengths. Then you would know if all four sides are equal, and therefore a rhombus. $d = \sqrt{(x-x)^2 + (y-y)^2}$

Homework #7: Find slopes of sides and lengths of sides. What quadrilateral is it? Why?
M(-2,5), N(2,6), O(4,-2), P(0,-3) P(-5,3), Q(1,6), R(9,0), S(-5,-7)