

Proving types of figures in the Coordinate Plane...

Isosceles Triangle: *A triangle with at least two congruent sides.*
At least two sides have the same length (distance formula).

Equilateral Triangle: *A triangle with three congruent sides.*
All three sides have the same length (distance formula).

Equilateral Polygon: *A polygon with all sides congruent.*

Equiangular Polygon: *A polygon with all angles congruent.*

Quadrilateral: *A four - sided polygon.*

Trapezoid: *A quadrilateral with exactly one pair of parallel sides.*
1.) Only one pair of slopes is equal (equal slopes / parallel lines)

Parallelogram: *A quadrilateral with two pairs of parallel sides.*
1.) Pairs of slopes are equal (equal slopes / parallel lines)

Rectangle: *A quadrilateral with four right angles.*
1.) These slopes are opposite reciprocals
(so the lines are perpendicular).

Rhombus: *A quadrilateral with all sides congruent.*
1.) All sides are the same length (distance formula).

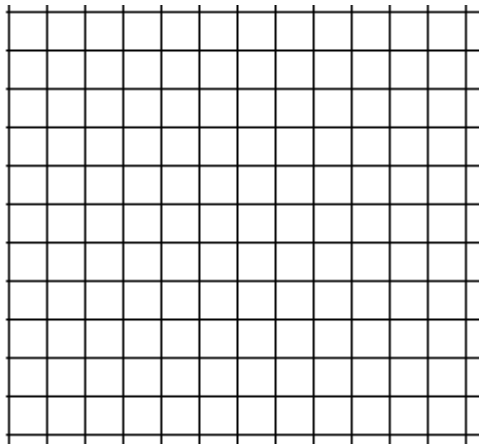
Square: *A quadrilateral with four congruent sides and four right angles.*
1.) All sides are the same length (distance formula).
2.) These slopes are opposite reciprocals
(so the lines are perpendicular).

"Hierarchy of Quadrilaterals" (we will prove this in the next unit!)

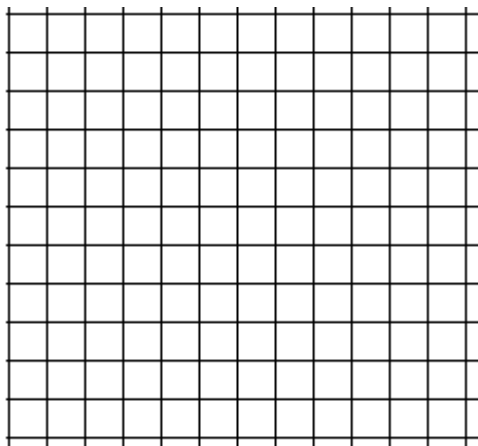
Each time you're asked about a quadrilateral, do the following:

- 1.) Find the slope of each side.
- 2.) Find the length of each side.
- 3.) Complete an analysis... explain what you find... state the most specific term.

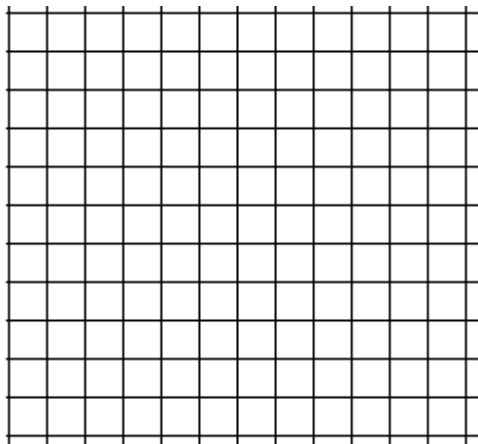
[EX1] Find the most specific name for quadrilateral ABCD, with points
A(-2,3), B(0,-2), C(5,0), D(3,5)



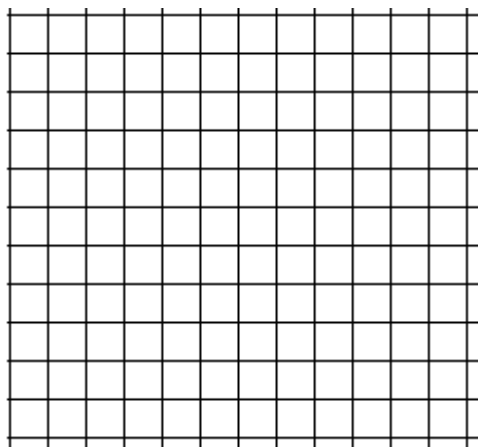
[EX2] Find the most specific name for quadrilateral ABCD, with points
A(3, -1), B(2,2), C(-3,-1), D(-2,-4)



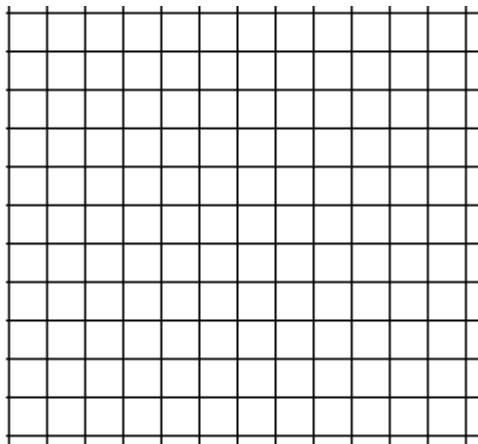
[EX3] Show that triangle ABC is an isosceles triangle, but not an equilateral triangle, where $A(3,-1)$, $B(5,6)$, and $C(7,-1)$ are the points.



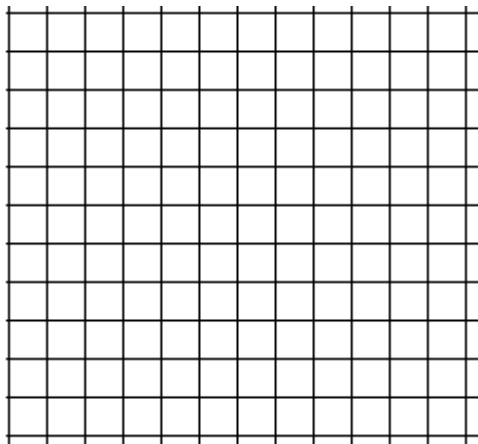
[EX4] Find the most specific name for quadrilateral ABCD, with points $A(3,-7)$, $B(6,-1)$, $C(2,1)$, and $D(-1,-5)$.



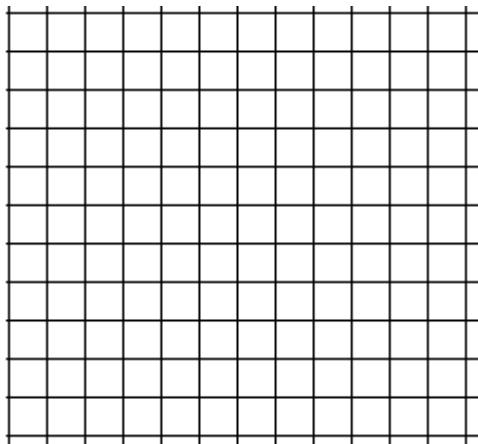
[EX5] Find the most specific name for the quadrilateral ABCD with points A(-1,2), B(1,4), C(4,8), and D(5,10).



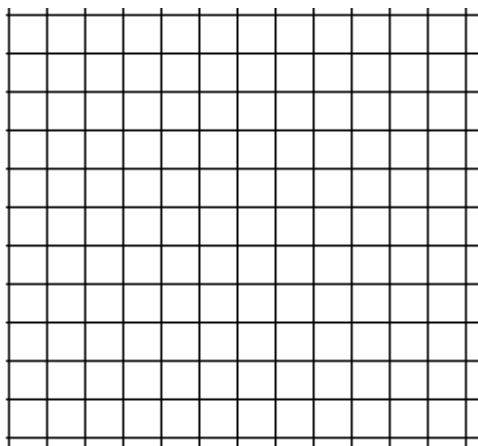
[EX6] Find the most specific name for the quadrilateral ABCD with points A(-3,0), B(0,2), C(4,-4), and D(1,-6).



[EX7] Find the most specific name for the quadrilateral ABCD with points A(-1,-2), B(2,-1), C(5,-2), and D(2,-3).



[EX8] Find the most specific name for the quadrilateral ABCD with points A(-1,0), B(1,1), C(4,0), and D(1,-1).



[EX9] Given quadrilateral ABCD with A(0,2), B(2,0), C(6,0), and D(4,6), do the following:

- (A) Calculate the midpoint of each of its sides (Show your work!)**
- (B) Connect the midpoints of its sides to form quadrilateral WXYZ.**
- (C) Determine the most specific name for quadrilateral WXYZ.**

