Placing Quadrilaterals in the Coordinate Plane

Directions: Using graph paper, plot the quadrilaterals in a coordinate plane. You will need to use your formulas for slope, midpoint, and distance.

Plot points \(A = (1, 2), B = (2, 5), C = (4, 3)\) and \(D = (5, 6)\).

1. What specialized geometric figure is quadrilateral \(ABCD\)? Support your answer mathematically.

2. Draw the diagonals of \(ABCD\). Find the coordinates of the midpoint of each diagonal. What do you notice?

3. Find the lengths of the diagonals of \(ABCD\). What do you notice?

4. Find the slopes of the diagonals of \(ABCD\). What do you notice?

5. The diagonals of \(ABCD\) create four small triangles. Are any of these triangles congruent to any of the others? Why or why not?
Plot points $A = (-3, -1)$, $B = (-1, 2)$, $C = (4, 2)$, and $D = (2, -1)$.

1. What specialized geometric figure is quadrilateral $ABCD$? Support your answer mathematically.

2. Draw the diagonals of $ABCD$. Find the coordinates of the midpoint of each diagonal. What do you notice?

3. Find the lengths of the diagonals of $ABCD$. What do you notice?

4. Find the slopes of the diagonals of $ABCD$. What do you notice?

5. The diagonals of $ABCD$ create four small triangles. Are any of these triangles congruent to any of the others? Why or why not?
Plot points $A = (1, 0)$, $B = (-1, 2)$, and $C = (2, 5)$.

1. Find the coordinates of a fourth point $D$ that would make $ABCD$ a rectangle. Justify that $ABCD$ is a rectangle.

2. Find the coordinates of a fourth point $D$ that would make $ABCD$ a parallelogram that is not also a rectangle. Justify that $ABCD$ is a parallelogram but is not a rectangle.