11-3 Do Now: Using slope to prove theorems

1. The opposite sides of a parallelogram are both _____ and _____.

2. Opposite internal angles of a parallelogram are _____ .

3. Adjacent internal angles of a parallelogram are _____.

4. The diagonals of a parallelogram _____ each other.

5. Draw quadrilateral $ABCD$ with vertices $A(0,2)$, $B(6,-1)$, $C(5,3)$, and $D(-1,6)$ on the grid below. Prove that $ABCD$ is a parallelogram by using slopes to show $\overline{AB}||\overline{CD}$ and $\overline{AD}||\overline{BC}$.

   Be sure to state that $m_{\overline{AB}} = m_{\overline{CD}}$ and $m_{\overline{AD}} = m_{\overline{BC}}$. Finish with a concluding statement.
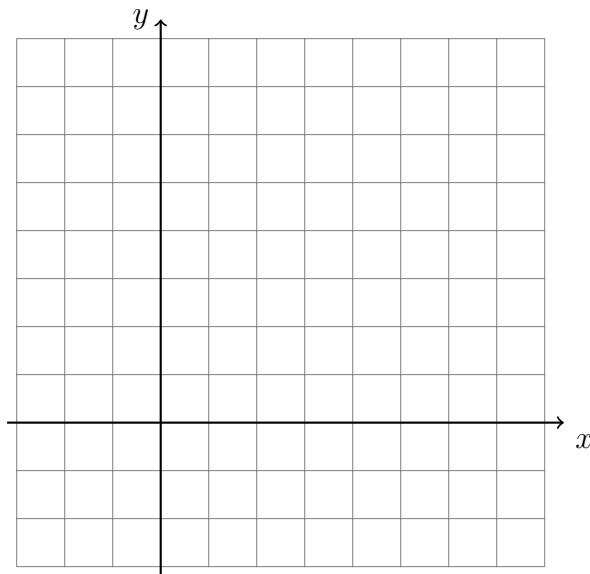
6. Three of the vertices of the parallelogram $ABCD$ are given: $A(-1,1)$, $B(4,-1)$, $C(6,6)$. Determine and state the coordinates of the fourth vertex, D, and mark and label it on the grid below. Draw the sides of the parallelogram.
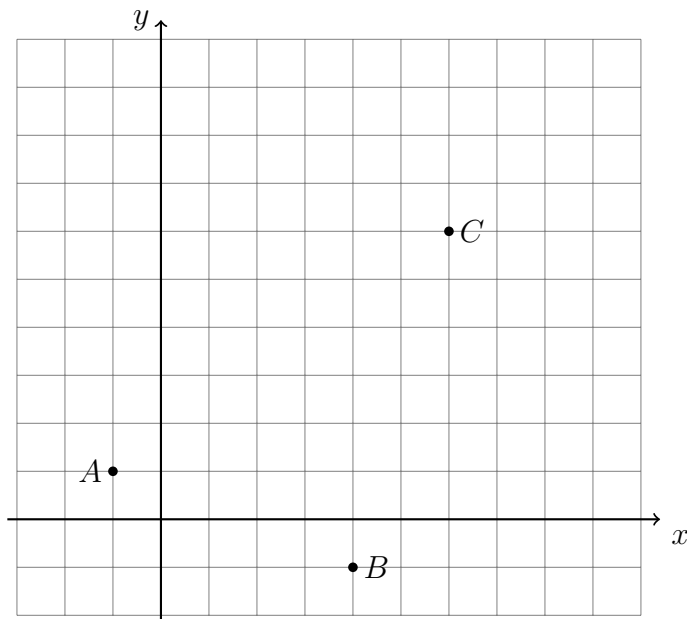
7. The parallelogram $BECA$ with vertices $B(-2,-1)$, $E(6,1)$, $C(4,7)$, and $A(-4,5)$ is shown. Use the midpoint formula to show that the diagonals $\overline{BC}$ and $\overline{EA}$ bisect each other. State that $M_{\overline{BC}} = M_{\overline{EA}}$ and the concluding statement. Draw the diagonals and label the midpoint.