8.G A rectangle in the coordinate plane

Task

Below is a quadrilateral in the coordinate plane:
a. Use the Pythagorean theorem to find the lengths of sides $\overline{AB}$, $\overline{BC}$, $\overline{CD}$, and $\overline{DA}$. Can you conclude that quadrilateral $ABCD$ is a rectangle?

b. Use the Pythagorean theorem to find the lengths of the two diagonals $\overline{AC}$ and $\overline{BD}$.

c. Use parts (a) and (b) to explain why quadrilateral $ABCD$ is a rectangle.