Geometry with Computer Visualization/Simulation Code Project Sample

Writing code that writes Geometric Proofs for you!

The coordinate points you entered are:
A(-5, -1)
B(-2, -5)
C(-6, -8)
D(-9, -4)

****** Proof ******

$m\overline{AB} = m\overline{DC} = -\frac{4}{3}$. Therefore $\overline{AB} \parallel \overline{DC}$.

Similarly, $m\overline{BC} = m\overline{AD} = \frac{3}{4}$. Therefore $\overline{BC} \parallel \overline{AD}$.

Since the opposite sides of $\square ABCD$ are parallel,
$\square ABCD$ is a parallelogram.

Furthermore, AC = DB = 7.07. So, $\overline{AC} \cong \overline{DB}$.

So, $\square ABCD$ is a parallelogram with congruent diagonals. Therefore, this quadrilateral a rectangle.

In addition, $m\overline{AC} = 7$ and $m\overline{BD} = -\frac{1}{7}$.

Since the product of the slopes is -1, $\overline{AC} \perp \overline{BD}$.

So, $\square ABCD$ is a parallelogram with perpendicular diagonals.

This means that this quadrilateral is a rhombus.

Finally, since $\square ABCD$ is both a rhombus and a rectangle,
$\square ABCD$ is a square.