2.2 - Length of a Line Segment

Learning Goals:
- Determine the length of a line segment

Specific Success Criteria:
- Use the length of a line segment formula
- Clearly identify and label coordinates.

Given 2 points, identify the coordinates and plug them into a formula... Wait, where does this formula come from?

Ex. Find the distance between \((2, 4)\) and \((5, 8)\).

\[d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}\]

\[c^2 = a^2 + b^2\]
\[c^2 = 3^2 + 4^2\]
\[c = 25\]
\[c = \sqrt{25} = 5\]

The formula is \(d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}\)
24. On a map your house is located at \((7, 2)\), the school is at \((3, 11)\), and your favourite pizza place is at \((14, -1)\). Which is closest to your home?

**Given**
Required
Analysis
Solve
Paraphrase

**Draw a little sketch**

\[
\begin{align*}
& (3, 11) \\
& (14, -1)
\end{align*}
\]

**House to school**

\[
\begin{align*}
& (7, 2) \\
& (x_1, y_1)
\end{align*}
\]

\[
d_1 = \sqrt{(3 - 7)^2 + (11 - 2)^2}
\]

\[
d_1 = \sqrt{16 + 81}
\]

\[
d_1 = \sqrt{97}
\]

\[
d_1 = 9.8488 = 9.849
\]

**House to pizza place**

\[
\begin{align*}
& (7, 2) \\
& (x_2, y_2)
\end{align*}
\]

\[
d_2 = \sqrt{(14 - 7)^2 + (-1 - 2)^2}
\]

\[
d_2 = \sqrt{49 + 9}
\]

\[
d_2 = \sqrt{58}
\]

\[
d_2 = 7.6157 = 7.616
\]

So food is closer than education!

**Homework**

L1: pg. 77 # 1ac, 2ac, 5
L2: pg. 77-78 # 6, 8, 14
L3: pg. 79 # 20, 22, 24

CH. 1 TEST TOMORROW!