1.1 Making Conjectures: Inductive Reasoning

If the same result occurs over and over again, we may conclude that it will always occur. This kind of reasoning is called **inductive reasoning**.

Inductive reasoning can lead to a **conjecture**, which is a testable expression that is based on available evidence but is not yet proved.

(*not true; it can be tested*)

**Example 1:** Use inductive reasoning to make a conjecture about the product of an odd integer and an even integer.

- \(7 \times 6 = 42\)
- \(3 \times 10 = 30\)
- \(9 \times 12 = 108\)

**Conjecture:** The product of an odd integer and an even integer is even.

**Example 2:** Make a conjecture about intersecting lines and the angles formed.

**Conjecture:** Opposite angles of intersecting lines are equal.
Example 3: Make a conjecture about the sum of two odd numbers.

\[
\begin{align*}
7 + 3 &= 10 \\
-3 + 7 &= 4 \\
-21 + -3 &= -24 \\
5 + 3 &= 8
\end{align*}
\]

Conjecture:
The sum of two odd numbers is even.

Assignment: pg. 12 #3, 5, 6, 9, 10-12, 14, 16, 20 (optional)