Back to the basic basics! An **equation** is a mathematical statement with an equal (=) sign and two equivalent expressions. A **solution** to an equation is the set of values or a value that makes the equation true. An **equation in one variable** simply means that the equation contains one (1) variable with an exponent value of one (1). See examples:

\[
2y=6 \quad 3x+5=-2 \quad 7n+3=2n-1
\]

Why do I say “exponent value of one?”

Some facts and terminology about “=”.

- **Reflexive Property**: \( a = a \)
- **Symmetric Property** if \( a = b \), then \( b = a \)
- **Transitive Property** if \( a = b \) and \( b = c \), then \( a = c \)
- **Addition Property** if \( a = b \), then \( a + c = b + c \)
- **Subtraction Property** if \( a = b \), then \( a - c = b - c \)
- **Multiplication Property** if \( a = b \), then \( ac = bc \)
- **Division Property** if \( a = b \) and \( c \neq 0 \), then \( \frac{a}{c} = \frac{b}{c} \)
- **Substitution Property** if \( a = b \), then \( b \) may be substituted for \( a \) in any expression to obtain an equivalent expression

**Steps to solve a one variable equation:**

1. Isolate variable onto one side of the equation (preferably left) by using the inverse properties.
2. Combine like terms.
3. Apply multiplication inverse property if needed to get a single variable with no coefficients.
4. Check your answer!

**Remember!** even when there are multiple variables in an equation, you can solve for one variable in terms of the other variables.

**Example**—

Solve: \( 3(n + 2) = 6 \) \hspace{2cm} \( 5(3x - 1) + 2 = 3(2 - 4x) \)

**Example**: The area of a triangle is given by the following equation: \( A = \frac{1}{2}bh \), solve this equation for \( h \)

\[
A = \frac{1}{2}bh
\]

**Example**: The sum of 3 consecutive integers is 90. Find the three numbers. (let \( x \)=first integer).