

EQUATIONS AND INEQUALITIES

What Are Equations and Inequalities?

An **equation** is mathematical statement that shows that two expressions are equal to each other.

- The expressions used in an equation can contain variables or numbers.
- An equation can be in verbal form or algebraic form.
- Equations are solved by using inverse operations. Inverse operations are used to isolate a variable. Inverse operations



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The algebraic representation of this is $22x = 110$.



- **Equations are solved using the inverse operations.** To solve the equation $n - 52 = 38$, look to see what operation is being performed in the problem, subtraction. The problem can be solved using the inverse operation of addition as the example shows:

$$\begin{array}{r} n - 52 = 38 \\ + 52 \quad +52 \\ \hline n \quad = 90 \end{array}$$

Since 52 was subtracted in the initial problem, it will be added with inverse operations. ***The rule when dealing with equations is whatever is done to one side of the equation must be done to the other side.*** So 52 is added to 38 on the



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Try This!

1. Translate into an algebraic equation:

Six times a number diminished two is twenty-eight.

A number increased by seven squared is fifty-four.

2. Solve if $n = 3$:

$$7 - n^2$$

$$4n + 8$$



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$$x - 12 > -36$$

$$8x < -128$$

$$x/-2 \geq 18$$