ALGEBRAIC EQUATIONS

What Are Algebraic Equations?

Algebraic equations are mathematical equations that contain a letter or variable, which represents a number. When algebraic equations are written in words, the words must be changed into the appropriate numbers and variable in order to solve. To solve an algebraic equation, inverse operations are used.

Two-step equations involve two different mathematical operations that must be evaluated in order to solve the equation. Equations can be solved using addition, subtraction, multiplication and division. Most two-step equations involve either addition or subtraction with either multiplication or division.

Some algebraic equations can contain **variables on both sides of an equation.** ... be moved so there a... other side before eva...

How to u...

Algebraic ... ust be changed into the correct numbers or variables before solving. For example, what is the phrase, five times a number decreased by four is sixty-three, as a mathematical equation?

Ex. Five times a number → **5x**
decreased by four → -4
is sixty-three → = 63

The equation is 5x - 4 = 63.

Once the words or word problems have been changed to numbers, the equation can be evaluated.

To evaluate two-step equations, inverse operations are used.

With two-step equations, it is very important to isolate the variable before evaluating. **Isolating the variable** means to get the variable alone on one side of the equation.

For example, evaluate 3x + 2 = 23.

Ex. 3x + 2 = 23 → isolate the variable by subtracting 2

$$\begin{array}{r} -2 \quad -2 \\ \hline \frac{3x}{3} = \frac{21}{3} \end{array} \rightarrow \text{now solve for x}$$

x = 7

In this equation, x = 7. If 3 was divided first and then 2 was subtracted, the result would be incorrect.

Algebraic equations can also have **variables on both sides of the equal sig**t be on one side o ther side of the equ

For exam

Ex. **7**

+3

The equation now becomes → 3x = x + 10

Now move the variable over → -x -x

2x = 10

x = 10/2 = 5

The answer for this equation is 5. Answers of algebraic equations should be checked by plugging the answer for x in the original equation.

In this case, (3)(5) -3 = 5 + 7 or 15 - 3 = 12 or 12 = 12.

Try This!

1. What is the **algebraic equation** that means a number divided by four plus two is six?

2. **Solve** for x, 3x - 7 = 5

3. **Solve** for x, x/6 + 21 = 27

4. **Solve** f

5. **Solve** f

6. **Solve** for x, 3x/4 = 8 + x