**EQUATION** is a mathematical sentence that uses an equal sign . It can be used to represent the relationship between two quantities that have the same value.

**TYPES:**

1. **True equation**: If the expressions on either side of the equal sign are equal.

1. **False equation**: If the expressions on either side of the equal sign are not equal.

1. **Open Sentence**: If the equation contains one or more variables, and maybe a true or false depending on the values of its variables.

**Sample Problem 1: Tell whether each equation is true, false, or open. Explain.**

1. True
2. False
3. Open **variable**

**SOLUTION OF AN EQUATION** containing a variable is a value of the variable that makes the equation true.

**Sample Problem 2: Tell whether the given number is the solution of each equation.**

1. Is a solution of the equation?
2. Is a solution of the equation?

1. Is a solution of the equation?

**Sample Problem 3: Find the solution of each equation.**

**Sample Problem 4: Use a table to find the solution of each equation.**



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**Sample Problem 5: Use a table to find two consecutive integers between which the solution lies.**



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**Sample Problem 6: Find the solution of each equation using mental math or table. If the solution lies between two consecutive integers, identify those integers.**



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**TRANSLATING SENTENCES TO EQUATIONS:**

* Use variables to represent the unspecified numbers or measures referred to in the sentence or problem.
* Write the verbal expressions as algebraic expressions.

Verbal Expressions that suggest the **equals sign**:

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| is equal to | is | is as much as | equals | is the same as | is identical to |

**Sample Problem 7:** Write an equation for each sentence.

1. Fifteen times the number is equal to four times the sum of and .
2. Three times subtracted from 57 equals 29.
3. The difference of 10 and a number is 5.