

STD: 7

SUBJECT: MATHS

SIMPLE EQUATION

Assignment - 2

RECALL

Variable:

A variable takes on different numeral value, its value is not fixed. Variables are denoted usually by letters of the alphabets. Eg. x, y, a, b

Expression:

The expressions are formed by performing operations like addition, subtraction, multiplication and division on the variables.

Eg. $2x + 5$, $5y - 3$

Equation:

An equation is a condition on a variable. It is expressed by saying that an expression with a variable is equal to a fixed number.

Eg. $3x + 2 = 11$, (here the value of x is 3)

Eg.1 Statement: The sum of x and 2 is 10

Equation: $x + 2 = 10$

Eg.2. Statement: The difference between x and 5 is 9

Equation: $x - 5 = 9$

Practice problems:

1. Write equations for the following statements
 - a) The sum of numbers x and 4 is 9.
 - b) 2 subtracted from y is 8.
 - c) Ten times of t is 90.
 - d) One-third of a number is 5.
 - e) 11 added to 2m gives.
 - f) Seven times m plus 7 gets you 77.
2. Write the following equations in statement form
 - a) $p + 4 = 15$
 - b) $m - 7 = 3$
 - c) $2x = 8$
 - d) $\frac{a}{4} = 2$
 - e) $4p - 2 = 18$

Solution:

The fixed value of the variable for which the equation is satisfied is called the solution of the equation.

Eg. $x + 3 = 8$

If $x = 5$

L.H.S : $x + 3$ R.H.S : 8

$5 + 3$

8

L.H.S = R.H.S, 5 is the solution to the equation.

Solving an equation:

$\begin{aligned}x + 2 &= 8 \\x + 2 - 2 &= 8 - 2 \\x &= 6\end{aligned}$	$\begin{aligned}y - 5 &= 8 \\y - 5 + 5 &= 8 + 5 \\y &= 12\end{aligned}$
$\begin{aligned}2x &= 8 \\2x &= 8 \\ \frac{2x}{2} &= \frac{8}{2} \\x &= 4\end{aligned}$	$\begin{aligned}\frac{x}{3} &= 5 \\ \frac{x}{3} \times 3 &= 5 \times 3 \\x &= 15\end{aligned}$
$\begin{aligned}2x + 3 &= 13 \\2x + 3 - 3 &= 13 - 3 \\2x &= 10 \\ \frac{2x}{2} &= \frac{10}{2} \\x &= 5\end{aligned}$	

Practice problems:

1. Complete the table and by inspection of the table find the solution to the equation

a) $n + 9 = 13$

n	2	3	4	5
n + 9				

b) $2m - 5 = - 1$

m	0	2	4	6
2m - 5				

2. Check whether the value given in the brackets is a solution to the given equation or not:

- a) $x + 5 = 19$ ($x = 1$) b) $n - 5 = 15$ ($n = 10$) c) $3y = 24$ ($y = 8$)
d) $2x + 3 = 13$ ($x = 3$) e) $5y - 3 = 7$ ($y = 2$)

3. Solve the following:

- a) $x + 3 = 9$ b) $y - 5 = 10$ c) $3x = 18$
d) $\frac{x}{4} = 7$ e) $2x - 3 = 11$ f) $-\frac{x}{3} = 2$
g) $5y - 20 = 10$ h) $\frac{x}{3} - 2 = 5$ i) $5 - x = 3$
j) $3x + 5 = 17$

3. Set up equations and solve them to find the unknown numbers in the following cases:

1. 5 added to a number gives 12.
2. 8 subtracted from a number gives - 3.
3. 4 times of a number is 48.
4. 3 times of a number increased by 5 is 17.
5. 2 times of a number decreased by 8 is 2