CLASS 8   **LINEAR EQUATIONS IN ONE VARIABLE**   **WA2 /25/06/2021**
Solution

OBJECTIVE

1) Which of the following is the definition of Linear equation with one variable?
a] A linear equation is an algebraic equation of the form ax+b =0

2) If $\frac{x}{3} + 1 = \frac{7}{15}$ then which of the following is correct? $(a)\frac{x}{3} = \frac{7}{15} -$

3) If 7x+15 = 50, then which of the following is the root of the equation?   (c) 5

4) If the sum of two consecutive numbers is 71 and one number is x, then the other number is-   a] x + (x+1) = 71

5) Number Ninja said "Two years ago my age was x years, then what was my age 5 years ago"?   d)x-3

6) Linear equation in one variable has 2 solutions. FALSE

7) $x^2 + 1 = 2x$ is a linear equation . FALSE.[Linear equation is represented in one variable with its exponent 1]

8) If p is an even number, then the next number is 2 p+1

9) When a number is divided by 8 you get -3 , then the number is   -24

10) $(x - a) \times (x - b) \times (x - c) \ldots \ldots \ldots \ldots \ldots \ldots .\times (x - x) \ldots \ldots \ldots \times (x - z) = 0$

Do as directed.

1) Divide 40 into two parts such that ¼ th of one part is 3/8 th of the other.

Let one part = x

Other part = 40-x

$\frac{1}{4}x = \frac{3}{8}(40 - x)$

Simplify , $\therefore x = 24$

The two parts are 24, 26

2) The digits of a 2-digit number differ by 5. If the digits are interchanged and the resulting number is added to the original number, we get 99. Find the original number.

Let the unit digit =y

Tens digit = y-5

Original no= $10(y - 5) + y$

Reversed no =$10y + (y - 5)$

$10(y - 5) + y + 10y + (y - 5) = 99$

Simplify y = 7

Thus the original number is 27

3) The sum of two twin prime numbers is 60. Find the prime nos.

Let one prime number = m

Other prime number = m+2

m+2+m =60

thus m =29

Twin prime numbers are 29,31

4) Ms. Geomica as twice the Mr. Algebro. If six years is subtracted from Mr. Algebro's age and 4 years added to Ms Geomica's age, then Ms Geomica will be four times Mr. Algebro's age. How old were they two years ago?

Let ALGEBRO s age = p

GEOMICAs age = 2p

$4(p - 6) = 2p + 4$

Simplify   p = 14

$\therefore ALGEBROs\ age = 14\ and\ GEOMICAs\ age = 28$

5) Omega is twice old as Pi . Five years ago Omega was 3 times as old as Pi. Find their present ages.

Let Pi s age = n

Omega s age = 2n

5yrs ago

Pi s age = n-5

Omega s age = 2n-5

$2n - 5 = 3(n - 5)$

Simplify n= 10

$\therefore PI\ s\ age = 10\ and\ OMEGAs\ age = 20$

6) Sum of two numbers is 2490. If 6.5% of one is equal to 8.5% of the other number, find the numbers.

Let first no = x

2nd number = 2490 -x

$\frac{6.5}{1\infty}x = \frac{8.5}{100}(2490 - x)$

Simplify   x= 1411

1st number = 1411 and 2nd number = 1079

7) Solve

$a]$ $\frac{(x+3)}{(6)} + 1 = \frac{(6x-1)}{3}$

$\frac{x+3+6}{6} = \frac{6x-1}{3}$

$\frac{x+9}{6} = \frac{6x-1}{3}$ simplify   x=1

$b]\ 15(x - 5) - 3(x - 9) + 5(x + 6) = 0$

$15x - 75 - 3x + 27 + 5x + 30 = 0$

$17x = 18$

$x = \dfrac{18}{17}$

$c]\ \dfrac{2}{x-3} + \dfrac{1}{x-1} = \dfrac{5}{x-1} - \dfrac{2}{x-2}$

$\dfrac{2(x-1) + (x-3)}{(x-3)(x-1)} = \dfrac{5(x-2) - 2(x-1)}{(x-1)(x-2)}$

$\dfrac{2x - 2 + x - 3}{x-3} = \dfrac{5x - 10 - 2x + 1}{x-2}$

$\dfrac{3x - 5}{x-3} = \dfrac{3x - 9}{x-2}$

$(3x - 5)(x - 2) = (3x - 9)(x - 3)$

$3x^2 - 6x - 5x + 10 = 3x^2 - 9x - 9x + 27$

Simplify $x = \dfrac{17}{7}$

$d]\ \dfrac{3-7x}{15+2x} = 0$

$3 - 7x = 0$

$7x = 3$

$x = {}^{3}/_{7}$

$e]\ \dfrac{[17(2 - y) - 5(y + 12)]}{1 - 7y} = 8$

$34 - 17y - 5y - 60 = 8(1 - 7y)$

$-22y - 26 = 8 - 56y$

$34y = 34$

$y = 1$