



Solution of a Linear Equation

A. Solve the following equations and check your results.

(i) $3x = 2x + 18$

(ii) $5t - 3 = 3t - 5$

(iii) $5x + 9 = 5 + 3x$

(iv) $4z + 3 = 6 + 2z$

(v) $2x - 1 = 14 - x$

(vi) $8x + 4 = 3(x - 1) + 7$

B. Solve the following equations:

(i) $3x + \frac{1}{2} = \frac{3}{8} + \frac{x}{4}$

(ii) $2x + 3(x - 1) = \frac{7}{2}$

(iii) $\left(\frac{5x}{2}\right) - \left(\frac{3x}{4}\right) = 7$

(iv) $2(x - 3) = 4(x + 1) - 8$

(v) $\left(\frac{x}{5}\right) + 7 = 3$

(vi) $\frac{2x - 3}{5} = \frac{x + 4}{3}$

C. Fill in the blanks:

1. To maintain equality while solving an equation, we add or subtract the _____ value on both sides.
2. In a linear equation, if we multiply or divide both sides by the same non-zero number, the _____ remains true.
3. The solution of the equation $4x = 20$ is $x =$ _____.
4. When we transpose a term from one side of the equation to the other, its sign _____.
5. An equation has _____ solution when it is a linear equation in one variable.

D. Miscellaneous questions:

1. A number exceeds its one-third by 20. Find the number.
2. Find x if $\left(\frac{x}{7}\right) + \left(\frac{2}{5}\right) = \left(\frac{4x}{35}\right) + \left(\frac{3}{5}\right)$
3. The sum of a number and its half is 36. Find the number.
4. Solve: $0.4(x - 5) = 0.6(x + 2)$
5. A number when doubled and increased by 5 gives 29. Find the number.
6. If $\frac{3}{4}$ of a number is 15, what is the number?