

Linear Equation

A linear Equation is any equation that can be written in form of

$$ax + b = 0$$

where 'a' and 'b' are real numbers and 'x' is a variable.

Example

①

$$x + 2 = 6$$

$$x = 6 - 2$$

$$\boxed{x = 4}$$

③

$$2x = 5$$

$$\boxed{x = \frac{5}{2}}$$

②

$$x - 4 = -9$$

$$x = -9 + 4$$

$$\boxed{x = -5}$$

④

$$2x + 5 = 7$$

$$2x = 7 - 5$$

$$2x = 2$$

$$x = \frac{2}{2}$$

$$\boxed{x = 1}$$

Simultaneously Equation:

Ex 1

$$2x + 5y = 9 \quad \text{--- ①}$$

$$x + 3y = 2 \quad \text{--- ②}$$

From Eq ①

$$2x + 5y = 9$$

$$2x = 9 - 5y$$

$$x = \frac{9 - 5y}{2}$$

put value of x in eq (2)

Eq 2: $x + 3y = 2$

$$\frac{9-5y}{2} + 3y = 2$$

$$\cancel{x} \times \frac{(9-5y)}{\cancel{x}} + (3y) \times 2 = 2 \times 2$$

$$9-5y + 6y = 4$$

$$9-y = 4$$

$$9-4 = y$$

$$5 = y$$

so

$$\boxed{y = 5}$$

Now

$$x = \frac{9-5y}{2}$$

$$= \frac{9-5(5)}{2}$$

$$= \frac{9-25}{2}$$

$$= \frac{-16}{2}$$

$$\boxed{x = -8}$$

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