

Worksheet 6-1: Standard Form of Linear Equations**Forms of Linear Equations**

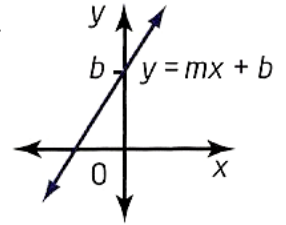
Linear equations can be expressed in many different forms. The two common forms are:

(i) **Standard Form:** $Ax + By + C = 0$,
where A , B , C are integers. A and B are not both zero, A is positive.

(ii) **Slope-Intercept Form:** $y = mx + b$

where m is the **slope** of the line, and b is the **y-intercept** of the graph of the line.

The y-intercept “ b ” is the y-coordinate of the point at which the line cuts the y-axis. It is the value of the dependent variable “ y ” when the independent variable “ x ” is 0.



1. Write each linear equation in standard form, and state its x - and y - intercepts.

(a) $y = 3x - 6$

(b) $y = \frac{1}{2}x + 3$

(c) $y = -6x + 12$

(d) $y = -\frac{3}{4}x - 9$

2. Write each linear equation in slope-intercept form, and state its slope and y-intercept.

Hint: Solve for y . Keep y positive.

Shortcut: $y = -\frac{A}{B}x - \frac{C}{B}$, $m = -\frac{A}{B}$ and $b = -\frac{C}{B}$

(a) $4x - 5y - 8 = 0$

(b) $x - 3y + 9 = 0$

(c) $9x - 3y + 6 = 0$

(d) $4x - 2y - 1 = 0$

(e) $3x + y = 0$

(f) $6x + 3y = 12$

Answers: 1. (a) $3x - y - 6 = 0$, 2, -6, (b) $x - 2y + 6 = 0$, -6, 3, (c) $6x + y - 12 = 0$, 2, 12, (d) $3x + 4y + 36 = 0$, -12, -9
2. (a) $y = \frac{4}{5}x - \frac{8}{5}$, (b) $y = \frac{1}{3}x + 3$, (c) $y = 3x + 2$, (d) $y = 2x - \frac{1}{2}$, (e) $y = -3x$, (f) $y = -2x + 4$;