

Solve each of the following equations. Make sure to check your solutions.

1. Linear Equations

(a) $3(x - 7) - 2(5x - 1) = 3x + 1$ -2

(b) $3(x - 2) - 2(5x - 4) = 2 - x$ 0

(c) $3(x - 2) - 2(5x - 4) = 11 - 7x$ **no solution**

(d) $\frac{3x - 1}{5} - \frac{5 - x}{2} = 4x + 6$ -3

(e) $\frac{x + 4}{2} + \frac{5 - 2x}{3} = \frac{22 - x}{6}$ **identity; all numbers are solution**

2. Quadratic or higher degree equations

(a) $x^2 = 25$ $5, -5$

(b) $6x^2 = 7x + 3$ $-\frac{1}{3}, \frac{3}{2}$

(c) $30x^3 + 4x^4 = 154x^2$ $\frac{7}{2}, 0, -11$

3. Absolute value equations.

(a) $|2x - 7| + 3 = 4$ $3, 4$

(b) $\left|3x - \frac{1}{2}\right| + 4 = 1$ **no solution**

(c) $2|3x - 7| - 4 = -4$ $\frac{7}{3}$