

# Algebra lesson 3 - Balancing equations Quiz

Solve the following equations by **balancing**  
(NOT by backtracking)

E.g. Correct method ✓

Solve  $x + 3 = 10$

$$x + \cancel{3} - \cancel{3} = 10 - 3$$

$$x = 7$$

Incorrect method ✗

Solve  $x + 3 = 10$

$$x = 10 - 3$$

$$= 7$$

①  $x + 5 = 14$

$$x + \cancel{5} - \cancel{5} = 14 - 5$$

$$x = 9$$

⑤  $2x + 2 = 10$

$$2x + \cancel{2} - \cancel{2} = 10 - 2$$

$$2x = 8$$

$$\frac{2x}{2} = \frac{8}{2}$$

$$x = 4$$

②  $x - 6 = 10$

$$x - \cancel{6} + \cancel{6} = 10 + 6$$

$$x = 16$$

⑥  $4x - 3 = 13$

$$4x - \cancel{3} + \cancel{3} = 13 + 3$$

$$4x = 16$$

$$\frac{4x}{4} = \frac{16}{4}$$

$$x = 4$$

③  $5x = 20$

$$\frac{5x}{5} = \frac{20}{5}$$

$$x = 4$$

④  $\frac{x}{4} = 8$

$$\frac{x}{\cancel{4}} \times \cancel{4} = 8 \times 4$$

$$x = 32$$

⑦  $\frac{x}{5} + 2 = 7$

$$\frac{x}{5} + \cancel{2} - \cancel{2} = 7 - 2$$

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

$$\frac{x}{5} \times 5 = 5 \times 5$$

$$x = 25$$

$$\textcircled{8} \quad 2x - 1 = 3x + 2$$

$$2x - 1 - 2x = 3x + 2 - 2x$$

$$-1 = x + 2$$

$$-1 - 2 = x + 2 - 2$$

$$-3 = x$$

$$\textcircled{12} \quad 5(x - 2) = 10$$

$$\frac{5(x-2)}{5} = \frac{10}{5}$$

$$x - 2 = 2$$

$$x - 2 + 2 = 2 + 2$$

$$x = 4$$

$$\textcircled{9} \quad -2x - 2 = 16$$

$$-2x - 2 + 2 = 16 + 2$$

$$-2x = 18$$

$$\frac{-2x}{-2} = \frac{18}{-2}$$

$$x = -9$$

$$\textcircled{13} \quad 10 - x = 2$$

$$10 - x - 10 = 2 - 10$$

$$-x = -8$$

$$\textcircled{10} \quad \frac{4x}{3} = 6$$

$$\frac{4x}{3} \times 3 = 6 \times 3$$

$$4x = 18$$

$$\frac{4x}{4} = \frac{18}{4}$$

$$x = \frac{9}{2}$$

$$\textcircled{14} \quad 40 - 2x = 30$$

$$40 - 2x - 40 = 30 - 40$$

$$-2x = -10$$

$$\frac{-2x}{-2} = \frac{-10}{-2}$$

$$x = 5$$

$$\textcircled{11} \quad -\frac{2}{3}x - 3 = 5$$

$$-\frac{2}{3}x - 3 + 3 = 5 + 3$$

$$-\frac{2}{3}x = 8$$

$$-\frac{2}{3}x \times 3 = 8 \times 3$$

$$-2x = 24$$

$$\frac{-2x}{-2} = \frac{24}{-2}$$

$$x = -12$$