

Enrichment

Equations With No Solutions

Not every equation has a solution. Watch what happens when we try to solve the following equation.

$$8 - (3 - 2x) = 5x - 3x$$

$$8 - 3 + 2x = 2x$$

$$5 + 2x = 2x$$

$$5 = 0$$

Since the equation is equivalent to the false statement $5 = 0$, it has no solution. There is no value of x that will make the equation true.

Write a false statement that shows each equation has no solution.

1. $1 - 2t = 2(1 - t)$

2. $11y - 7y = 5 + 4y - 6$

3. $-7x^2 + 5 + 6x^2 = 12 - (2 + x^2)$

4. $2(2 - y^2) = 5 - (5 + 2y^2)$

5. $\frac{3}{2} + \frac{2}{3}p - 1 = \frac{1}{3}(1 + 2p)$

6. $0.5(1 + 3m) = 1.05 - (1 - 1.5m)$

Solve each equation if possible.

7. $5(3 - m) = 15m + 15$

8. $-9x + 12x = 3(2 - x)$

9. $10(0.2 + 0.4c) = 10c + 0.2 - 6c$

10. $13 - (3 - n) = 5(n + 2)$

11. $2(1 + 4t) = 8 - (3 - 8t)$

12. $3(d - 1) + 2 = 3(d + 2) - 5$