

Common Mistakes

Correct the mistake(s) in each problem. Explain your reasoning.

1. Simplify: $\frac{6x^2-1}{2x} = 3x - 1$

2. Solve the equation: $\frac{2}{5}x + 3 = -4$

$$2x + 3 = -20$$

$$2x = -23$$

$$x = -\frac{23}{2}$$

3. Multiply: $(x - 5)^2 = x^2 - 25$

4. Simplify: $-9^2 = 81$

5. Simplify: $\sqrt{x^2 + y^2} = x + y$

6. Simplify: $-4^{-3} = 4^3 = 12$

7. Proving: $1 = 2$

Given: $a = b$

$$a^2 = ab$$

$$a^2 - b^2 = ab - b^2$$

$$(a + b)(a - b) = b(a - b)$$

$$a + b = b$$

$$b + b = b$$

$$2b = b$$

$$2 = 1$$

8. Simplify: $\frac{x+2}{x^2+7x+10} = \frac{x+2}{(x+2)(x+5)} = x + 5$

9. Simplify: $\frac{x+2}{x^2+7x+10} = \frac{x+2}{(x+2)(x+5)} = \frac{1}{x+5} = \frac{1}{x} + \frac{1}{5}$

10. Solve the equation: $-7x^2 = x$
 $-7x = 1$
 $x = -\frac{1}{7}$

11. Notation: $\frac{3x-1}{2x+4} = 3x - 1/2x + 4$

12. Solve the equation: $x^2 - 9x = 4$
 $x(x - 9) = 4$
 $x = 4 \text{ or } x - 9 = 4$
 $x = 4 \text{ or } x = 13$

13. Factor: $2x^2 - 10x - 12 = x^2 - 5x - 6 = (x - 6)(x + 1)$

14. Simplify: $(3a^2b)^4 = 3a^8b^4$

15. Simplify: $\frac{7^5}{7^3} = 1^2$