

Practice Problems

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

1.) $2(x - 4) - x(3 - x) = (x - 6)^2$

2.) $\frac{x-2}{3} - \frac{x-3}{2} = 15 - x$

3.) $-2(3x - 5) + 4(3 - 2x) = 11(2 - 5x)$

4.) $3(x - 2)^2 - 2(x - 3)^2 = (x + 3)(x - 3)$

5.) $5(-3 - x) - 3x(x - 2) = x - 3(x + 2)(x - 5)$

6.) $2(-m - 2)^2 - (m - 2)^2 = 8m + (m + 2)^2$

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

8.) $\frac{2y-3}{5} - \frac{3y-1}{2} = -\frac{11y+1}{10}$

9.) $\frac{2}{3}(2y + 1) - \frac{3}{4}(3y - 1) = y - 12$

10.) $2(x - 4)^2 + 3(x + 1)^2 = 5x^2 - 3x$

11.) $4 - \frac{x-1}{3} + \frac{x}{2} = \frac{x+3}{5} - (x + 4)$

12.) $\frac{3x-1}{5} + \frac{x+2}{3} = \frac{8x+7}{15}$

Simplify each of the following:

13.) $(\sqrt{a} - \sqrt{b})^2$

14.) $(\sqrt{6 + \sqrt{11}} - \sqrt{6 - \sqrt{11}})^2$

Answers

1.) 4 2.) 17 3.) 0 4.) no solution 5.) -5 6.) all numbers are solution

7.) 0 8.) all numbers are solution 9.) 7 10.) 5 11.) -8 12.) 0

13.) $a + b - 2\sqrt{ab}$ 14.) 2

- 1.) $2(x - 4) - x(3 - x) = (x - 6)^2$ 4
- 2.) $\frac{x - 2}{3} - \frac{x - 3}{2} = 15 - x$ 17
- 3.) $-2(3x - 5) + 4(3 - 2x) = 11(2 - 5x)$ 0
- 4.) $3(x - 2)^2 - 2(x - 3)^2 = (x + 3)(x - 3)$ no solution
- 5.) $5(-3 - x) - 3x(x - 2) = x - 3(x + 2)(x - 5)$ -5
- 6.) $2(-m - 2)^2 - (m - 2)^2 = 8m + (m + 2)^2$ all numbers are solution
- 7.) $(3a - 5)(2 - a) - (2a - 1)(a + 3) = -5a^2 - 7$ 0
- 8.) $\frac{2y - 3}{5} - \frac{3y - 1}{2} = -\frac{11y + 1}{10}$ all numbers are solution
- 9.) $\frac{2}{3}(2y + 1) - \frac{3}{4}(3y - 1) = y - 12$ 7
- 10.) $2(x - 4)^2 + 3(x + 1)^2 = 5x^2 - 3x$ 5
- 11.) $4 - \frac{x - 1}{3} + \frac{x}{2} = \frac{x + 3}{5} - (x + 4)$ -8
- 12.) $\frac{3x - 1}{5} + \frac{x + 2}{3} = \frac{8x + 7}{15}$ 0