

Name: _____

Solving Equations Refresher

Reminder: Reverse PEMDAS to isolate and solve for the variable.

Part 1: Solving Simple Equations

Solve for the variable given in each problem.

1) $y + 7 = 12$

3) $3m - 17 = 13$

5) $\frac{x}{3} = -3$

2) $x - 4 = 14$

4) $3b = -21$

6) $\frac{x}{4} - 2 = 2$

Part 2: Solving Multi-Step Equations

Solve for the variable given in each problem.

7) $5y - 12 = y - 4$

10) $4m - 9 = -2m + 7$

8) $5x + 6x - 2x = 3x - 18 + 12 - 6$

11) $2(a - 8) + 3(a + 6) = 17$

9) $7 + 5(x - 3) = 3(x + 2)$

12) $3(2p + 1) = 5(p + 1)$

The 4 Steps of Equation Solving

1. Simplify both sides of the equation.
2. Move all parts of the equation that contain the variable you're solving for to the same side.
3. Isolate the variable using multiplication, division, exponentiation, or by taking roots.
4. Check your solution!

Part 3: Solving Equations with Fractions

Solve for the variable given in each problem. Remember rules for common denominators when adding and subtracting fractions. Use reverse PEMDAS to isolate and solve for the variable.

$$13) \frac{n}{-3} = 4$$

$$17) \frac{1}{2}(x - 5) = 2x - 5$$

$$14) \frac{w+8}{5} = 4$$

$$18) \frac{3x}{4} + \frac{x-5}{3} = \frac{1}{2}$$

$$15) \frac{1}{3}(10 + x) = x$$

$$19) \frac{x+4}{3} = \frac{x+6}{5}$$

$$16) \frac{5}{6}(x - 4) = \frac{1}{2}(x - 2)$$

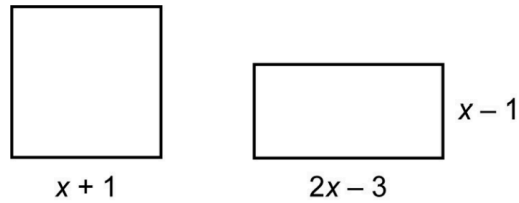
$$20) \frac{3x+2}{8} = \frac{3x-2}{4}$$

Part 4: Applications of Solving Equations

Solve each problem using the processes to solve equations.

21) In a triangle, the measure of the middle angle is triple the measure of the smallest angle, and the measure of the largest angle is 55° greater than the measure of the smallest angle. Find the measures of the angles. (Remember the sum of the angles in a triangle is 180°).

22) A square and a rectangle have the same perimeter. Find the side lengths of each figure.



23) A backyard has a perimeter of 144 meters.

A) If the backyard is square in shape, what would be the dimensions?

B) If the backyard is rectangular, and the length is three times the width, what are the dimensions?

24) Find three consecutive integers whose sum is 96.

Part 5: Equations with Exponents

Solve each of the following equations that involve higher order mathematical practices. Be sure to follow rules of solving equations.

$$25) \quad x^{\frac{7}{3}} = 2187$$

$$28) \quad 2x^0 + 4x^{-\frac{4}{5}} = \frac{1}{4}$$

$$26) \quad k^{\frac{3}{2}} + 8 = 56$$

$$29) \quad \frac{3}{2}(x^{\frac{-2}{3}} + 1) = 15$$

$$27) \quad -3 + \frac{x^{\frac{5}{4}}}{4} = 5$$

$$30) \quad \frac{1}{2}(3b + 25) = (-125)^{\frac{2}{3}}$$

