

Objective: Given an rational equation, students will find its solution algebraically, graphically and explain the process.

Study Problems pg 50 so #1, 15-23 odd

Section P-4 Solve Equations

- 1.) I will be able to solve quadratic equations by factoring and completing the square.
- 2.) I will be able to solve a radical equation by combining fractions.
- 3) I will be able to solve absolute value equation by writing two equation.
- 4) I will be able to solve radical equations by simplifying the power to one.

Warm up

Solve for the variable.

a) $8 - 3n = -8n + 23$

$n = 3$

b) $3x - (x - 1) = 1 - (3x - 9)$

$x = 9/5$

c) $x = -3/4$

~~$\frac{-5}{x} = \frac{20}{3}$~~

$\frac{-15}{20} = \frac{20x}{20}$

$-\frac{3}{4} = x$

Example 1

Determine whether the given values of x are solutions of the equation. Justify your answer.

$$\frac{5}{2x} - \frac{4}{x} = 3$$

$$\text{LCD} = 2x$$

$$2x \left(\frac{5}{2x} \right) - 2x \left(\frac{4}{x} \right) = 3(2x)$$

$$5 - 2(4) = 6x$$

$$5 - 8 = 6x$$

$$\frac{-3}{6} = \frac{6x}{6}$$

$$-\frac{1}{2} = x$$

A) $x = -1/2$

B) $x = 4$

C) $x = 0$

D) $x = 1/4$

Example 2

Solve the equation. Show all the work.

$$14 \cdot \frac{x}{2} + \frac{6x}{7} = \frac{19}{14}$$

$$\text{LCD} = 14$$

$$7x + 2(6x) = 19$$

$$7x + 12x = 19$$

$$19x = 19$$

$$x = 1$$

Example 3

Solve for the variable.

$$\frac{\cancel{x(x-3)} 3}{\cancel{x(x-3)}} + \frac{4 \cancel{x(x-3)}}{\cancel{x}} = \frac{1 \cancel{x(x-3)}}{\cancel{x-3}} \quad \text{LCD} = x(x-3)$$
$$x^2 - 3x$$

$$\frac{3 + 4(x-3)}{3 + 4x - 12} = \frac{1(x)}{x}$$

$$\frac{4x - 9}{-4x - 9} = \frac{x}{-4x}$$

$$-9 = -3x$$

$$\boxed{3 = x}$$