

You will need the quadratic formula

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

*Last step you should just be using your Quad

Name _____

Date _____

Advanced Algebra

Formula Program

Unit 5 Polynomial Functions Assignment #17

Learning Target: I can solve complex equations. You should be using your work from Assignment #16.

Directions: Solve the following equations for x.

1) $\frac{x+2}{x+4} + \frac{1}{x} = \frac{2x+1}{x+4}$

$$\frac{x(x+2)}{x(x+4)} + \frac{(x+4)}{x(x+4)} = \frac{x(2x+1)}{x(x+4)}$$

$$x^2 + 2x + x + 4 = 2x^2 + x$$

$$x^2 + 3x + 4 = 2x^2 + x$$

$$0 = x^2 - 2x - 4$$

$$\boxed{3.23 \text{ and } -1.24}$$

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

$$\frac{x(x+3)}{x(x+5)} + \frac{x+5}{x(x+5)} = \frac{x(2x+3)}{x(x+5)}$$

$$x^2 + 3x + x + 5 = 2x^2 + 3x$$

$$x^2 + 4x + 5 = 2x^2 + 3x$$

$$0 = x^2 - 1x - 5$$

$$\boxed{2.79 \text{ and } -1.79}$$

3) $\frac{x+6}{x+7} + \frac{1}{x} = \frac{3x+1}{x+7}$

$$\frac{x(x+6)}{x(x+7)} + \frac{x+7}{x(x+7)} = \frac{x(3x+1)}{x(x+7)}$$

$$x^2 + 6x + x + 7 = 3x^2 + x$$

$$x^2 + 7x + 7 = 3x^2 + x$$

$$0 = 2x^2 - 6x - 7$$

$$\boxed{3.898 \text{ and } -.898}$$

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

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

$$x^2 + 5x + x + 2 = 2x^2 + x$$

$$0 = x^2 - 5x - 2$$

$$\boxed{5.37 \text{ and } -.372}$$

$$5) \frac{3x+1}{x+2} + \frac{2}{x} = \frac{6x-2}{x+2}$$

$$\frac{x(3x+1)}{x(x+2)} + \frac{2(x+2)}{x(x+2)} = \frac{x(6x-2)}{x(x+2)}$$

$$3x^2 + x + 2x + 4 = 6x^2 - 2x$$

$$3x^2 + 3x + 4 = 6x^2 - 2x$$

$$0 = 3x^2 - 5x - 4$$

2.26 And -0.59

$$6) \frac{4x+1}{x+3} + \frac{8}{x} = \frac{8x-3}{x+3}$$

$$\frac{x(4x+1)}{x(x+3)} + \frac{8(x+3)}{x(x+3)} = \frac{x(8x-3)}{x(x+3)}$$

$$4x^2 + x + 8x + 24 = 8x^2 - 3x$$

$$4x^2 + 9x + 24 = 8x^2 - 3x$$

$$0 = 4x^2 - 12x - 24$$

4.37 And -1.37