

Advanced Algebra

Unit 5 Polynomials

Assignment #20 Review #1 for test

Solve the following equations ( These should all be quadratic after you get common denominators and cancel them out...so you should be using the quadratic formula on your calculator)

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

$(3x-2)(x+3) + 4(x+1) = (2x+1)(x+3)$

$3x^2 + 7x - 6 + 4x + 4 = 2x^2 + 7x + 3$

$3x^2 + 11x - 2 = 2x^2 + 7x + 3$

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

$(x+5)(x-1) = 0$

Final answer for #1

$x = -5 \quad x = 1$

2)  $\frac{x+7}{x-1} + \frac{2x}{x+2} = \frac{2x+7}{x-1}$

$(x+7)(x+2) + 2x(x-1) = (2x+7)(x+2)$

$x^2 + 9x + 14 + 2x^2 - 2x = 2x^2 + 11x + 14$

$3x^2 + 7x + 14 = 2x^2 + 11x + 14$

$x^2 - 4x = 0$

$x(x-4)$

Final answer for #2

$x = 0 \quad x = 4$

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

$x(x+1) - 2(x-3) = (2x-6)x$

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

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

$0 = x^2 - 5x - 6$   
 $(x-6)(x+1)$

Final answer for #3

$x = 6 \quad x = -1$

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

Final answer for #4

$x = -5 \quad x = 1$

Mixed Review:

5) Simplify the expression  $(12x+22)-(14x-6)$

Final answer for #5

$-2x + 28$

6) Multiply the expression  $(6x-2)^2$  out into general form

Final answer for #6

$36x^2 - 24x + 4$

7) Multiply the expression  $(4x-2)^3$  out into general form

$$64x^3 - 3 \cdot 16x^2(2) + 3(4x)4 - 8$$

$$64x^3 - 96x^2 + 48x - 8$$

Final answer to #7

~~$$16x^2 - 16x + 4$$~~

8) Solve the equation.  $\frac{12x-18}{4x+5} = \frac{4}{5}$

$$5(12x-18) = 4(4x+5)$$

$$60x-90 = 16x+20$$

$$44x = 110$$

Final answer to #8

$$x = 2.5$$

9) Multiply the following out into general form  $f(x) = 4(x+2)(3x-5)(x+3)$

$$\begin{array}{r} x^2 + 5x + 6 \\ 3x \left| \begin{array}{l} 3x^3 \\ -5x^2 \\ -25x \\ -30 \end{array} \right. \end{array}$$

$$4(3x^3 + 10x^2 - 7x - 30)$$

$$12x^3 + 40x^2 - 28x - 120$$

Final answer to #9

$$12x^3 + 40x^2 - 28x - 120$$

10) Add the following fraction  $\frac{4x+5}{(x+7)} + \frac{6}{x}$

$$\frac{4x^2 + 5x}{x(x+7)} + \frac{6x+42}{x(x+7)}$$

Final answer to #10

$$\frac{4x^2 + 11x + 42}{x(x+7)}$$