

Advanced Algebra

Unit 5 Polynomials

Assignment #21 Review #2 for unit 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) $\frac{2x-3}{(x+1)} = \frac{(x+6)}{(x-2)}$

Basic cross multiply

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

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

$$x^2 - 14x = 0$$

$$x(x-14) = 0$$

Final answer for #1

$x=0$ $x=14$

2) $\frac{4x+1}{x-5} + \frac{x+2}{x+1} = \frac{-x-9}{x-5}$

Get Common denominators

$$(4x+1)(x+1) + (x+2)(x-5) = (-x-9)(x+1)$$

$$4x^2 + 5x + 1 + x^2 - 3x - 10 = -x^2 - 10x - 9$$

$$5x^2 + 2x - 9 = -x^2 - 10x - 9$$

$$6x^2 + 12x = 0 \quad 6x(x+2) = 0$$

Final answer for #2

$x=0$ $x=-2$

3) $\frac{x+1}{x+3} + \frac{4}{x+1} = \frac{-x-7}{x+3}$

Get Common denominators

$$(x+1)(x+1) + 4(x+3) = (-x-7)(x+1)$$

$$x^2 + 2x + 1 + 4x + 12 = -x^2 - 8x - 7$$

$$x^2 + 6x + 13 = -x^2 - 8x - 7$$

$$2x^2 + 14x + 20 = 0$$

Final answer for #3

$x=-2$ $x=-5$

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

Basic cross multiply

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

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

$$0 = 2x^2 + 3x - 1$$

Final answer for #4

$x=.28$ $x=-1.8$

Mixed Review:

5) Simplify the expression $(25x-22)-(18x+6)$

$$7x - 28$$

Final answer for #5

$7x - 28$

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

Final answer for #6

$$16x^2 - 24x + 9$$

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

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

$$8x^3 - 12x^2y + 6xy^2 - y^3$$

Final answer to #7

$$8x^3 - 12x^2y + 6xy^2 - y^3$$

8) Solve the equation. $\frac{6x-12}{3x+2} = \frac{7}{8}$

Basic cross
multiply

$$8(6x-12) = 7(3x+2)$$

$$48x - 96 = 21x + 14$$

$$27x = 110$$

Final answer to #8

$$x = 4.07$$

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

$$\begin{array}{r|l} & x^2 - 3x - 10 \\ 3x & 3x^3 - 9x^2 - 30x \\ 4 & 4x^2 - 12x - 40 \end{array}$$

$$2(3x^3 - 5x^2 - 42x - 40)$$

$$6x^3 - 10x^2 - 84x - 80$$

Final answer to #9

$$6x^3 - 10x^2 - 84x - 80$$

10) Add the following fraction $\frac{3x+8}{(x+4)} + \frac{10}{x}$

$$\frac{(3x+8)x}{x(x+4)} + \frac{10(x+4)}{x(x+4)} \quad 3x^2 + 8x + 10x + 40$$

Final answer to #10

$$\frac{3x^2 + 18x + 40}{x(x+4)}$$