

Algebra II		
pg 249		
2) $\{ -4 \}$	16) \emptyset	24) \emptyset
4) $\{ 4 \}$	18) $\{ 0, -3 \}$	25) \emptyset
6) $\{ 2 \}$	19) $\{ 1, 3 \}$	26) $\{ \pm 5 \}$
8) $\{ 6 \}$	20) $\{ 1, 3 \}$	27) $\{ 1, -3 \}$
10) $\{ 1 \}$	21) $\{ 0, 3 \}$	28) $\{ -1, 5 \}$
12) $\{ 2 \}$	22) $\{ -1 \}$	
14) $\{ -4 \}$	23) $\{ -4 \}$	

10) $\left[\frac{(y+1)^2}{(y-3)^2} = 1 \right] (y-3)^2$

Domain: \mathbb{R} except $\{ 3 \}$

$$(y+1)^2 = (y-3)^2$$

$$(y+1)(y+1) = (y-3)(y-3)$$

$$y^2 + 2y + 1 = y^2 - 6y + 9$$

$$8y = 8$$

$$y = 1$$

$$\{ 1 \}$$

14) $\left[\frac{k}{k+1} + \frac{k}{k-2} = 2 \right] (k+1)(k-2)$

D: \mathbb{R} except $\{ -1, 2 \}$

$$k(k-2) + k(k+1) = 2(k+1)(k-2)$$

$$k^2 - 2k + k^2 + k = 2(k^2 + k - 2k - 2)$$

$$2k^2 - k = 2k^2 - 2k - 4$$

$$k = -4$$

$$\{ -4 \}$$

18) $\left(\frac{1}{x+1} - \frac{1}{x+2} = \frac{1}{2} \right) 2(x+1)(x+2)$

Domain: \mathbb{R} except $\{ -1, -2 \}$

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

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

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

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

$$0 = x(x+3)$$

$$\{ 0, -3 \}$$

19) $\left[\frac{u}{u-2} + \frac{30}{u+2} = 9 \right] (u-2)(u+2)$

Domain: \mathbb{R} except $\{ \pm 2 \}$

$$u(u+2) + 30(u-2) = 9(u-2)(u+2)$$

$$u^2 + 2u + 30u - 60 = 9(u^2 - 4)$$

$$u^2 + 32u - 60 = 9u^2 - 36$$

$$0 = 8u^2 - 32u + 24$$

$$0 = u^2 - 4u + 3$$

$$0 = (u-3)(u-1)$$

$$\{ 3, 1 \}$$

21) $\left[\frac{2}{x-1} - \frac{x}{x+3} = \frac{6}{x^2+2x-3} \right] (x-1)(x+3)$

Domain: \mathbb{R} except $\{ -3, 1 \}$

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

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

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

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

$$0 = x(x-3)$$

$$\{ 0, 3 \}$$

$$27) \left[\frac{x-3}{x+1} \right]^2 = 2 \cdot \frac{x-3}{x+1} + 3 (x+1)^2$$

Domain: \mathbb{R} except $\{-1\}$

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

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

$$x^2-6x+9 = 2x^2-4x-6+3(x^2+2x+1)$$

$$x^2-6x+9 = \underline{2x^2} - 4x - 6 + \underline{3x^2} + \underline{6x} + 3$$

$$x^2-6x+9 = 5x^2+2x-3$$

$$0 = \frac{4x^2}{4} + \frac{8x}{-4} - \frac{12}{4}$$

$$0 = x^2 + 2x - 3 \quad \{-3, 1\}$$

$$0 = (x+3)(x-1)$$

$$28) \left[\frac{t+3}{t-1} \right]^2 = 2 + \frac{t+3}{t-1} (t-1)^2$$

Domain: \mathbb{R} except $\{1\}$

$$(t+3)^2 = 2(t-1)^2 + (t+3)(t-1)$$

$$(t+3)(t+3) = 2(t-1)(t-1) + t^2+2t-3$$

$$\cancel{t^2} + 6t + 9 = 2(\cancel{t^2} - 2t + 1) + \cancel{t^2} + 2t - 3$$

$$6t + 9 = 2t^2 - 4t + 2 + 2t - 3$$

$$6t + 9 = 2t^2 - 2t - 1$$

$$0 = \frac{2t^2}{2} - \frac{8t}{2} - \frac{10}{2} \quad \{5, -1\}$$

$$0 = t^2 - 4t - 5$$

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