Algebra II

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7) Domain: $\mathbb{R}$ ex $\{0\}$ Zeros: $\{2\}$	13) Domain: $\mathbb{R}$ ex $\{\pm 1\}$ Zeros: $\emptyset$	23) Domain: $\mathbb{R}$ ex $\{1\}$ Zeros: $\{\pm 2\}$
8) Domain: $\mathbb{R}$ ex $\{2\}$ Zeros: $\{0\}$	14) Domain: $\mathbb{R}$ Zeros: $\{\pm 2\}$	24) Domain: $\mathbb{R}$ ex $\{-2\}$ Zeros: $\{2\}$
9) Domain: $\mathbb{R}$ ex $\{1\}$ Zeros: $\{-1\}$	15) Domain: $\mathbb{R}$ ex $\{\pm 2\}$ Zeros: $\{4\}$	25) Domain: $\mathbb{R}$ ex $\{\pm 2, 0\}$ Zeros: $\{\frac{3}{2}, -3\}$
0) Domain: $\mathbb{R}$ ex $\{-1\}$ Zeros: $\emptyset$	pg 229	26) Domain: $\mathbb{R}$ ex $\{\frac{1}{2}\}$ Zeros: $\{\frac{1}{4}, -4\}$
1) Domain: $\mathbb{R}$ Zeros: $\{-3\}$	21) Domain: $\mathbb{R}$ ex $\{0, 7\}$ Zeros: $\{\pm 3\}$	27) Domain: $\mathbb{R}$ ex $\{\pm 1\}$ Zeros: $\{2\}$
2) Domain: $\mathbb{R}$ ex $\{2\}$ Zeros: $\{1, 3\}$	22) Domain: $\mathbb{R}$ ex $\{\pm 2\}$ Zeros: $\{0\}$	28) Domain: $\mathbb{R}$ ex $\{1\}$ Zeros: $\{-4, -1\}$

14) $\dfrac{x^2-4}{x^2+4} = \dfrac{(x+2)(x-2)}{x^2+4}$

Domain: $\mathbb{R}$

Zeros: $\{\pm 2\}$

23) $F(x) = (x^4-16)(x^3-1)^{-1}$

$F(x) = \dfrac{x^4-16}{x^3-1^3} = \dfrac{(x^2+4)(x^2-4)}{(x-1)(x^2+1x+1^2)}$

$= \dfrac{(x^2+4)(x+2)(x-2)}{(x-1)(x^2+x+1)}$ (can't = 0)

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

Zeros: $\{\pm 2\}$

27) $F(x) = \dfrac{x^3-2x^2+x-2}{x^4+x^2-2} = \dfrac{(x^3-2x^2)+(x-2)}{(x^2+2)(x^2-1)}$

$= \dfrac{x^2(x-2)+(x-2)}{(x^2+2)(x+1)(x-1)} = \dfrac{(x-2)(x^2+1)}{(x^2+2)(x+1)(x-1)}$ (can't = 0; can't equal zero)

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

Zero: $\{2\}$

26) $g(s) = \dfrac{4s^2+15s-4}{(2s-1)^2} = \dfrac{(4s-1)(s+4)}{(2s-1)^2}$

Domain: $\mathbb{R}$ except $\{\frac{1}{2}\}$ ($2s-1=0$, $2s=1$, $s=\frac{1}{2}$)

Zeros: $\{-4, \frac{1}{4}\}$

28) $h(t) = \dfrac{t^3+4t^2-t-4}{t^3-t^2+t-1} = \dfrac{(t^3+4t^2)+(-t-4)}{(t^3-t^2)+(t-1)}$ (t^2, t^2, $-$)

$= \dfrac{t^2(t+4)(t+4)}{t^2(t-1)+(t-1)} = \dfrac{(t+4)(t^2-1)}{(t^2+1)(t-1)} = \dfrac{(t+4)(t+1)(t-1)}{(t^2+1)(t-1)}$

Domain: $\mathbb{R}$ except $\{1\}$ Zeros: $\{-4, -1\}$