

1a) Need $2-x \geq 0$

$x \leq 2$ for $\forall x \in \mathbb{R}$

b) Don't want $(x^2-4)(x+5) = 0$

$x^2-4 \neq 0$ $x+5 \neq 0$

$x \neq \pm 2$ $x \neq -5$

Domain; ~~$\mathbb{R}$~~

$\forall x \in \mathbb{R}$ except
 $x \neq \pm 2, -5$

c) want $\frac{x}{4-x^2} \geq 0$

$\Rightarrow x \geq 0$

$\Rightarrow -2 < x < 2$

not equal
because in
denominator

together gives

Domain: $0 \leq x < 2$

2) a) $\frac{x+3}{x+4}$

b) $x^5 + 3$

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

d) $\frac{(x+3)^5}{(x+3)^5 + 1}$

3) $f(x) = \frac{1}{x^2+x}$

a) $f(2) = \frac{1}{6}$

b) $\frac{1}{y^4+y^2}$

c) $\frac{\frac{1}{(x+3)^2} - \frac{1}{12}}{x} = \frac{12 - (x^2+7x+12)}{12x(x^2+7x+12)}$

$= \frac{-x(x+7)}{12x(x+3)(x+4)} = \frac{-(x+7)}{12(x+3)(x+4)}$

4) a) $f(x) = \frac{1}{x}$

$g(x) = 3x+4$

b) $f = x^{20}$

$g = 7x^4 + 5x^2 - 2$

c) $f = \sqrt[3]{x}$ $g = \sqrt{x} - 1$

d) $f = x^{20}$

$g = 7x^2 + 5x - 2$

$h = x^2$

$f = \sqrt[3]{x}$

$g = x - 1$

$h = \sqrt{x}$

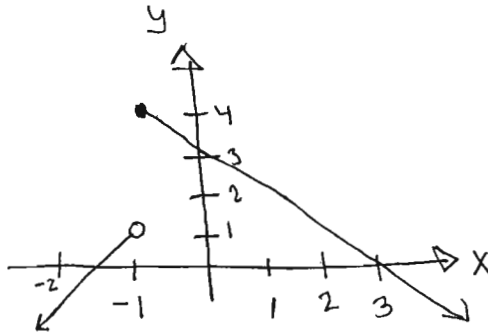
5) a) odd

b) even

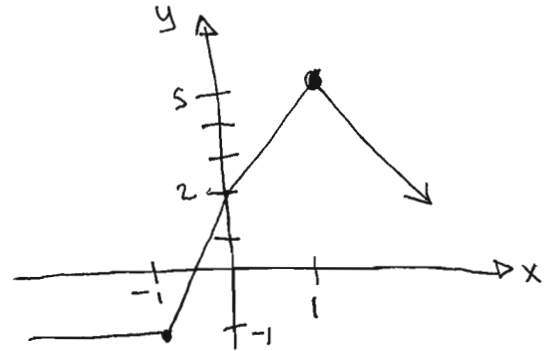
c) Neither

6) $m = \frac{2+6}{1+3} = \frac{8}{4} = 2$ $y - 2 = 2(x-1)$
 $y = 2x$

7) a)



b)



8) a) Vertical Scaling by factor 5

b) Horizontal Shift by factor 5

c) Vertical scaling by factor 5

Vertical shift by -3 or |3|