

F-PC Pre-Calculus Week 17

$$f(x) = \frac{2}{x^2 - 4}$$

Domain

Denominators $\neq 0$
Even radicals

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

$$(x-2)(x+2) \neq 0$$

$$\begin{array}{cc} x-2 \neq 0 & x+2 \neq 0 \\ +2 & +2 \\ +2 & -2 \end{array}$$

$$\boxed{x \neq 2 \quad x \neq -2}$$

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

$$+4 \quad +4$$

$$\sqrt{x^2} = \sqrt{4}$$

$$\boxed{x \neq \pm 2}$$

$$\underbrace{(-\infty, -2) \cup (-2, 2) \cup (2, \infty)}$$

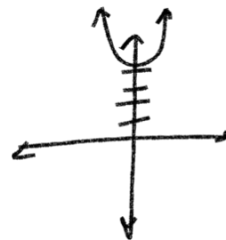
$$\frac{2}{x^2 + 4}$$

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

$$-4 \quad -4$$

$$\sqrt{x^2} \neq \sqrt{-4}$$

$$x \neq \pm 2i$$



$$\sqrt{x+6} \geq 0$$

$$x+6 \geq 0$$

$$-6 \quad -6$$

$$\boxed{x \geq -6}$$

$$[-6, \infty)$$

$$\frac{1}{\sqrt{x+6}}$$

$$(\sqrt{x+6})^2 \neq (0)^2$$

$$x+6 \neq 0$$

$$-6 \quad -6$$

$$\boxed{x \neq -6}$$

$$x+6 \geq 0$$

$$-6 \quad -6$$

$$x \geq -6$$

$$\boxed{x > -6}$$

$$(-6, \infty)$$

$$f(t) = 3t + 5 \quad g(t) = t^2 - 5$$

$$f(-1) - g(-1)$$

$$3t + 5 - (t^2 - 5)$$

$$3(-1) + 5 - ((-1)^2 - 5)$$

$$-3 + 5 - (1 - 5)$$

$$2 - (-4)$$

$$2 + 4 = \boxed{6}$$

$$f(t) - g(t)$$

$$3t + 5 - t^2 + 5$$

$$f(t) - g(t)$$

$$-t^2 + 3t + 10$$

$$-(-1)^2 + 3(-1) + 10$$

$$-1 - 3 + 10$$

$$-4 + 10$$

$$\boxed{6}$$