

10-14-13
3rd Trig

$$f(x) = 3x - 1$$

$$g(x) = 2x + 10$$

$$f(g(2))$$

$$g(2) = 2(2) + 10 = 14$$

$$f(14) = 3(14) - 1 = 41$$

$$g(f(2))$$

$$f(2) = 3(2) - 1 = 5$$

$$g(5) = 2(5) + 10 = 20$$

$$f(x) = 5x - 2$$

$$f(f(2))$$

$$f(2) = 5(2) - 2 = 8$$

$$f(8) = 5(8) - 2 = 38$$

f: Coupon 1 : \$10 off

g: Coupon 2 : 20% off price

x = cost of item

$$f(x) = x - 10$$

$$g(x) = .80x$$

Shirt is \$90

$$f(g(90)) \quad \text{vs.} \quad g(f(90))$$

$$f(72) \quad \quad g(80)$$

$$= \$62$$

$$= \$64$$

$$f(x) = \frac{8}{x} \quad \text{When will there be a problem here?}$$

$$x = 0$$

Domain of this function is
every x will work except x ≠ 0

$$\mathbb{R} \text{ except } x \neq 0$$

↑
all real #s

$$f(x) = \frac{10}{x-4}$$

Domain: \mathbb{R} except $x \neq 4$

$$f(x) = \frac{3x^2 - x + 100000}{x+2}$$

Domain: \mathbb{R} except $x \neq -2$

$$f(x) = \frac{x^{100} - 12}{5x - 2}$$

Domain: \mathbb{R} except $x \neq \frac{2}{5}$

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

Domain: \mathbb{R}

$$f(x) = \sqrt{\quad} \leftarrow \text{can't have a negative \#}$$

$$f(x) = \sqrt{x-2}$$

$$x-2 \geq 0$$

$$x \geq 2$$

Domain: $\mathbb{R} : x \geq 2$

$$f(x) = \sqrt{x+6}$$

$$x+6 \geq 0$$

$$\frac{-6}{-6} \quad \frac{-6}{-6}$$

$$x \geq -6$$

Domain: $\mathbb{R} : x \geq -6$

$$f(x) = x + 8$$

Domain: \mathbb{R}

$$f(x) = \frac{x-8}{x+5}$$

Domain: \mathbb{R} except $x \neq -5$

$$f(x) = \sqrt{5x+8}$$

$$5x+8 \geq 0$$

$$\frac{-8}{5} \quad \frac{-8}{5}$$

$$\frac{5x}{5} \geq \frac{-8}{5}$$

Domain: $\mathbb{R} : x \geq -\frac{8}{5}$

$$f(x) = \frac{6}{(x-2)(x+10)}$$

Domain: \mathbb{R} except $x \neq 2, -10$

10-14-13

4th Trig

$$f(x) = 3x + 1$$

$$g(x) = 2x - 5$$

$$f(g(6))$$

$$\downarrow$$
$$2(6) - 5 = 7$$

$$f(7) = 3(7) + 1 = 22$$

$$g(f(6))$$

$$f(6) = 3 \cdot 6 + 1 = 19$$

$$g(19) = 2 \cdot 19 - 5 = 33$$

$f(x)$ Coupon 1: 40% off

$g(x)$ Coupon 2: \$10 off

$x = \text{cost of item}$

$$f(x) = .60x$$

$$g(x) = x - 10$$

$$f(g(x)) \quad \text{or} \quad g(f(x))$$

$$f(g(80)) \quad \text{vs.} \quad g(f(80))$$

$$\downarrow$$
$$= f(70)$$

$$= \$42$$

$$g(48)$$

$$= \$38$$

$$f(x) = \frac{8}{x}$$

Every body works except 0.

Domain: \mathbb{R} except $x \neq 0$.

$$f(x) = \frac{x^5 - x^2 + 1}{x - 6}$$

Domain: \mathbb{R} except $x \neq 6$

$$f(x) = \frac{6}{2x-1} \quad \begin{array}{l} 2x-1 \neq 0 \\ 2x+1 \\ x \neq \frac{1}{2} \end{array}$$

Domain: \mathbb{R} except $x \neq \frac{1}{2}$

$$f(x) = x - 8$$

Domain: \mathbb{R}

$$f(x) = \sqrt{x-2}$$

$$\begin{array}{l} x-2 \geq 0 \\ x \geq 2 \end{array}$$

Domain: $\mathbb{R} : x \geq 2$

$$f(x) = \sqrt{5x-1}$$

$$\begin{array}{l} 5x-1 \geq 0 \\ \frac{5x-1}{+1 \quad +1} \\ \frac{5x}{5} \geq \frac{1}{5} \\ x \geq \frac{1}{5} \end{array}$$

Domain: $\mathbb{R} : x \geq \frac{1}{5}$

$$f(x) = \sqrt{x+10}$$

$$\begin{array}{l} x+10 \geq 0 \\ \frac{x+10}{-10 \quad -10} \\ x \geq -10 \end{array}$$

Domain: $\mathbb{R} : x \geq -10$

$$f(x) = x^2 + 6$$

Domain: \mathbb{R}

$$f(x) = \frac{x^3 - 2}{x + 7}$$

$$\begin{array}{l} x+7 \neq 0 \\ x \neq -7 \end{array}$$

Domain: \mathbb{R} except $x \neq -7$

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

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