

Day 2
Warm-Up:

1) $f(x) = \sqrt{x+3}$

a) $f(-2)$
 $\frac{\sqrt{-2+3}}{\sqrt{1}} = 1$

b) $f(x + \Delta x)$
 $\frac{\sqrt{x + \Delta x + 3}}{\sqrt{x + \Delta x + 3}}$

2) $f(x) = 3x - 1$ Find $\frac{f(x) - f(1)}{x - 1}$

$$= \frac{3x - 1 - [(3 \cdot 1) - 1]}{x - 1} = \frac{3x - 1 - 2}{x - 1} =$$

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

Functions Review:

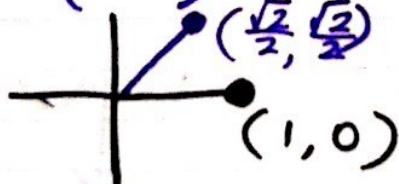
3) $f(x) = \sin x$ $g(x) = \pi x$

a) $f(g(2))$

$$g(2) = 2\pi$$

$$f(2\pi) = \sin 2\pi$$

$$f(2\pi) = 0$$



b) $(g \circ f)\left(\frac{\pi}{4}\right)$

$$g\left(f\left(\frac{\pi}{4}\right)\right)$$

$$f\left(\frac{\pi}{4}\right) = \sin \frac{\pi}{4} = \frac{\sqrt{2}}{2}$$

$$g\left(\frac{\sqrt{2}}{2}\right) = \pi \cdot \frac{\sqrt{2}}{2}$$

$$= \frac{\pi\sqrt{2}}{2}$$