Recitation #2 Chapter 1 - Precalculus Review
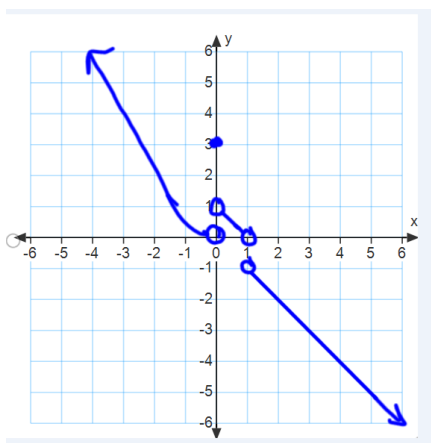
Warm up:

If f is always increasing, is f^{-1} always increasing?

Group work:

Problem 1 *Given the graph of the function f below, answer the following questions.*

(a) *What is the domain of f?*

(b) *What is the range of f?*

(c) *What is $f(0)$? $f(1)$? $f(2)$?*

(d) *Does f have an inverse? Why or why not?*

(a) Find the inverse $y = f^{-1}(x)$ of the function. State the domain and range of the inverse.

    (a) $f(x) = x^2 - 4x - 5$ (when $x > 2$).
    (b) $f(x) = \sqrt[4]{x + 2}$.

(c) $f(x) = \dfrac{1}{(x+2)^2}$ (when $x > 2$).

(b) Find all values of x which satisfy the equation.

   (a) $\log_x 25 = 2$
   (b) $7^x = 15$

(c) Find all values which satisfy the given equation.

   (a) $\cos(x) = 1$
   (b) $\sin(3\theta) = \dfrac{\sqrt{3}}{2}$ for $0 \le \theta \le 2\pi$

(d) (a) Simplify the expression: $\cos^{-1}\left(\sin\left(\dfrac{\pi}{2}\right)\right)$

   (b) Simplify the expression: $\tan\left(\cos^{-1}\left(\dfrac{4}{x}\right)\right)$