Do Now: Find a possible function for $f(x)$.

**Intermediate Value Theorem** - For polynomial function $f$, if $a < b$ and if $f(a)$ and $f(b)$ are of opposite signs, then there exists at least one real zero of $f$ between $a$ and $b$. 

Together as a class . . .
Ex. Use the IVT to show and explain that each polynomial function has a zero in the given interval.

1. \( f(x) = 2x^3 - x^2 + 2x - 3 \)  
   \([0,2]\)

2. \( g(x) = -x^3 + 3x^2 + 10x \)  
   \([-3,-1]\)
Together as a class . . .

The opposite of the Intermediate Value Theorem IS NOT TRUE.

**NOT TRUE:** For polynomial function $f$, if $a < b$ and if $f(a)$ and $f(b)$ are of **THE SAME** signs, then there exists **NO** real zeros of $f$ between $a$ and $b$.

Here's why: $f(x) = x^2 - 5x + 4$ \([0,6]\)
- $f(0) = 4$
- $f(6) = 10$

Begin: Wkst #119