UNIVERSITY OF TEXAS AT AUSTIN

Quiz #2

Prerequisite material.

Provide your **complete solution** to the following problems:

Problem 2.1. (5 points) Let the function f be given by

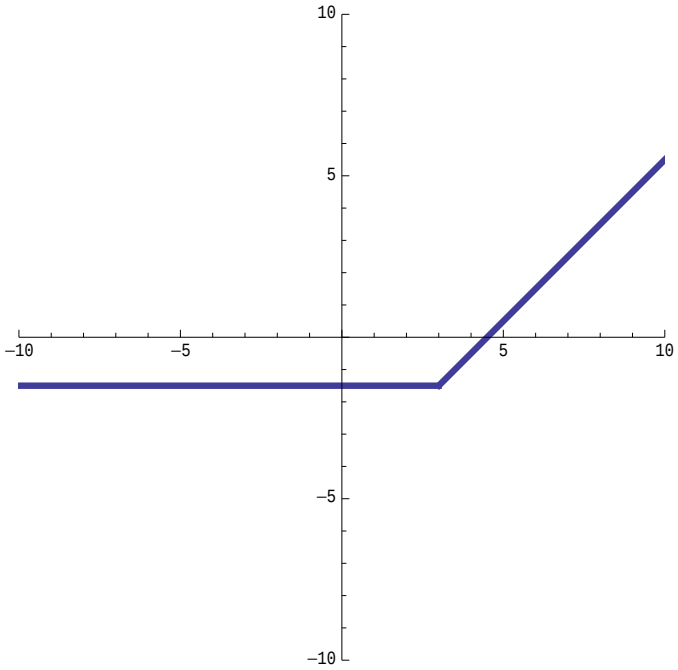
$$f(x) = \begin{cases} x - 3 & \text{for } x \geq 3 \\ 0 & \text{otherwise} \end{cases}$$

Draw the graph of the function g defined as

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

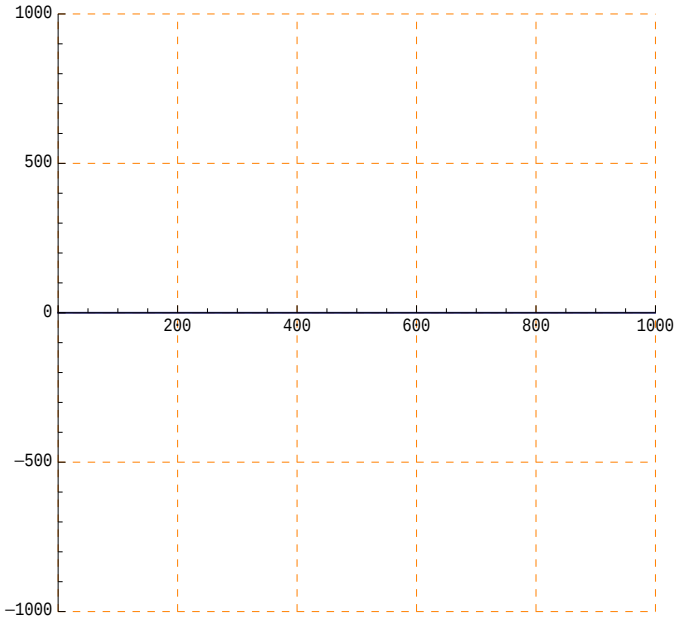
Clearly label your axes!

Solution: Here is the graph:

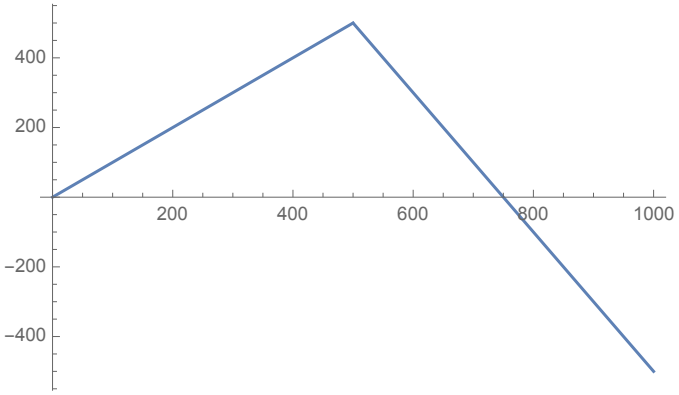


Problem 2.2. (5 points) Draw the graph of the following function in the coordinate system provided below:

$$f(x) = \begin{cases} x & \text{for } x < 500 \\ 1500 - 2x & \text{for } x \geq 500 \end{cases}$$



Solution:



Problem 2.3. (5 pts) Let $f : \mathbb{R} \to \mathbb{R}$ and $g : \mathbb{R} \to \mathbb{R}$ be two functions given by

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

and

$$g(x) = \begin{cases} x & \text{if } x \geq 0 \\ 0 & \text{if } x < 0 \end{cases}$$

Then, $g(f(3))$ equals ...

(a) -13
(b) -10
(c) -7
(d) 0
(e) None of the above

Solution: (d)