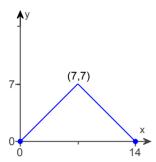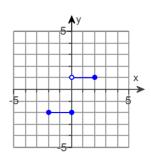| **Student:** Arfaz Hossain	**Course:** MATH 100 (A01, A02, A03) Fall 2021
Instructor: UVIC Math	**Book:** Thomas' Calculus Early Transcendentals, 14e
Date: 10/07/21	**Time:** 10:13

Find a formula for the function graphed.

a.

b.

a. The graph shows a function which can best be defined as a piecewise function with two pieces. Thus, it contains y-values given by two different formulas.

Starting at $x = 0$ and ending at $x = 7$, the function is $f(x) = x$.

Starting at $x = 7$ and ending at $x = 14$, the function is $f(x) = -x + 14$.

Write each piece of the function using the proper notation. Notice that $x = 7$ only needs to be included in one piece of the function, and it is arbitrary which piece is chosen. In this case, it will be included in the first piece.

$f(x) = x,\ 0 \le x \le 7$
$f(x) = -x + 14,\ 7 < x \le 14$

Thus, the formula for the function is $f(x) = = \begin{cases} x, & 0 \le x \le 7 \\ -x + 14, & 7 < x \le 14 \end{cases}$.

b. The graph shows two horizontal line segments. Thus, it contains only two y-values.

Starting at $x = -2$ and ending at $x = 0$, the function is $f(x) = -2$.

Starting at $x = 0$ and ending at $x = 2$, the function is $f(x) = 1$.

Write each piece of the function using the proper notation.

$f(x) = -2,\ -2 \le x \le 0$
$f(x) = 1,\ 0 < x \le 2$

Thus, the formula for the function is $f(x) = \begin{cases} -2, & -2 \le x \le 0 \\ 1, & 0 < x \le 2 \end{cases}$.