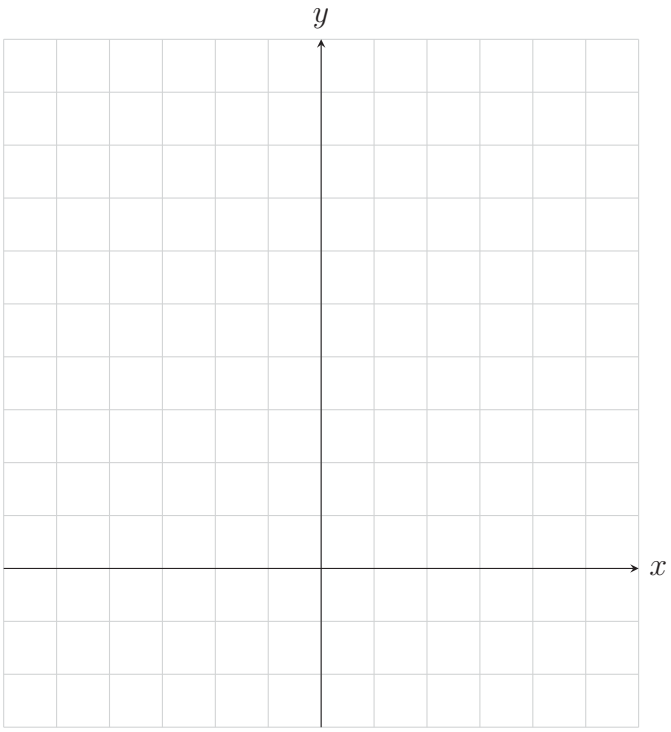
Math 111 GWS 3 - Piecewise Functions Name: _____

1. A function f defined as

$$f(x) = \begin{cases} 2\sqrt[3]{x+1} & \text{if } x \leq -2 \\ \left(\frac{1}{2}x\right)^2 & \text{if } x > -2 \end{cases}$$

a. Graph $y = f(x)$.



b. Find $f(-2)$, $f(0)$, and $f(7)$.

c. Locate any intercepts.

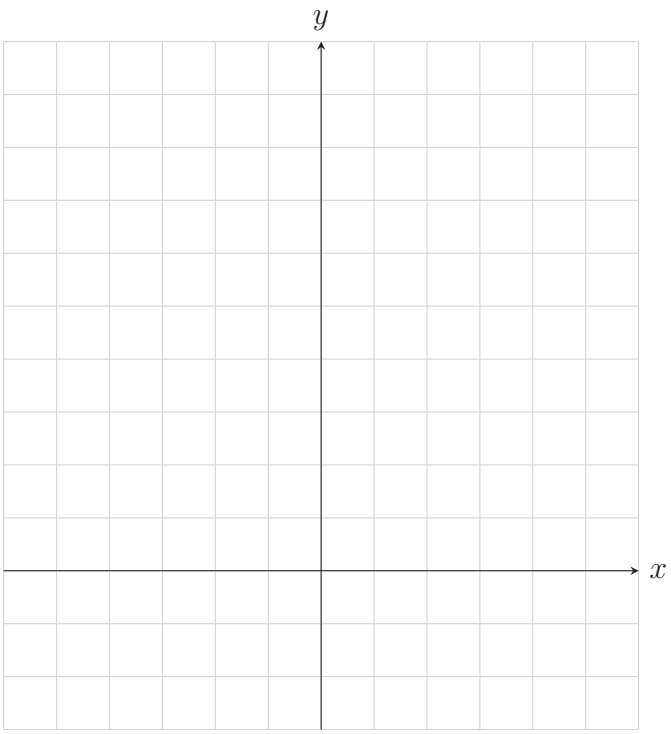
d. Determine the domain and range of f.

e. Is f continuous *on its domain*?

2. A function f defined as

$$f(x) = \begin{cases} -2x + 1 & \text{if } -3 \leq x < 1 \\ 2 & \text{if } 1 < x < 3 \\ (x-3)^2 + 1 & \text{if } x \geq 3 \end{cases}$$

a. Graph $y = f(x)$.



b. Find $f(-2)$, $f(1)$, and $f(2)$.

d. Determine the domain and range of f.

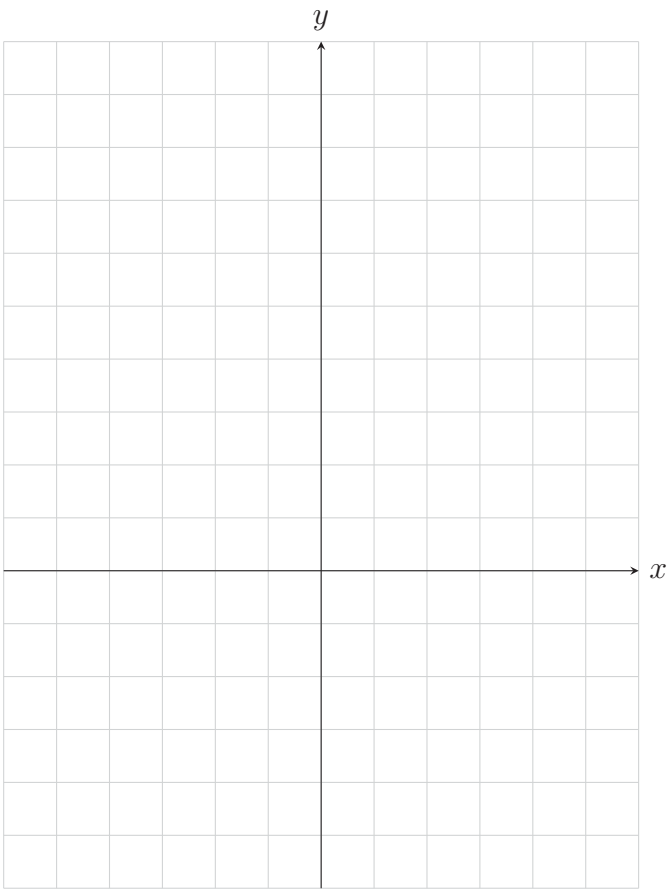
e. Is f continuous *on its domain*?

c. Locate any intercepts.

3. A function f defined as

$$f(x) = \begin{cases} -3x & \text{if } x < -1 \\ 0 & \text{if } x = -1 \\ -\sqrt{x-1}+1 & \text{if } x > 1 \end{cases}$$

a. Graph $y = f(x)$.



b. Find $f(-2)$, $f(-1)$, and $f(0)$.

d. Determine the domain and range of f.

e. Is f continuous *on its domain*?

c. Locate any intercepts.

4. The graph of a piecewise-defined function is given. Write a definition for the function.