

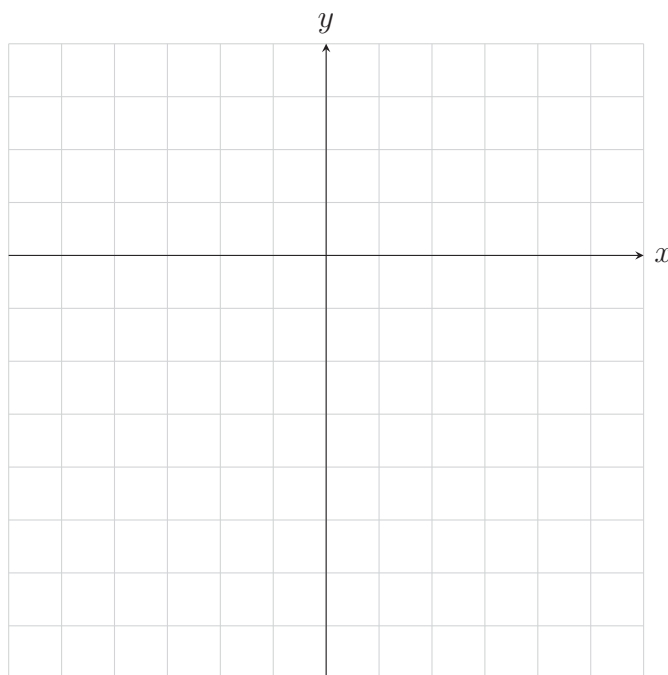
Math 111 Quiz 2 - Piecewise and Function Algebra TUTORS OKAY!

Name: \_\_\_\_\_

1. A function  $f$  defined as

$$f(x) = \begin{cases} 2x - 3 & \text{if } x < -2 \\ 2 & \text{if } x = -2 \\ -2x^2 + 5 & \text{if } 1 < x \leq 2 \end{cases}$$

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



b. Find  $f(-3)$ ,  $f(-2)$ , and  $f(0)$ .

d. Determine the domain and range of  $f$ .

c. Locate any intercepts.

e. Is  $f$  continuous *on its domain*?

2. Suppose  $f(x) = 2x^2 - 5$ . Find  $\frac{f(x+h) - f(x)}{h}$ .

3. Suppose that  $f(x) = \frac{1}{2x+1}$  and  $g(x) = \frac{2}{x-1}$ . Find  $(f \circ g)(x)$  and state its domain.

4. Find functions  $f$  and  $g$  such that  $f \circ g = H$  if  $H(x) = 3\sqrt[3]{2x} + 4$ . In fact, find multiple solutions to this exercise.