

## Quiz 1

**Directions:** Carefully read each question below and answer to the best of your ability in the space provided. You **MUST** show your work to receive full credit!

1. Consider the function

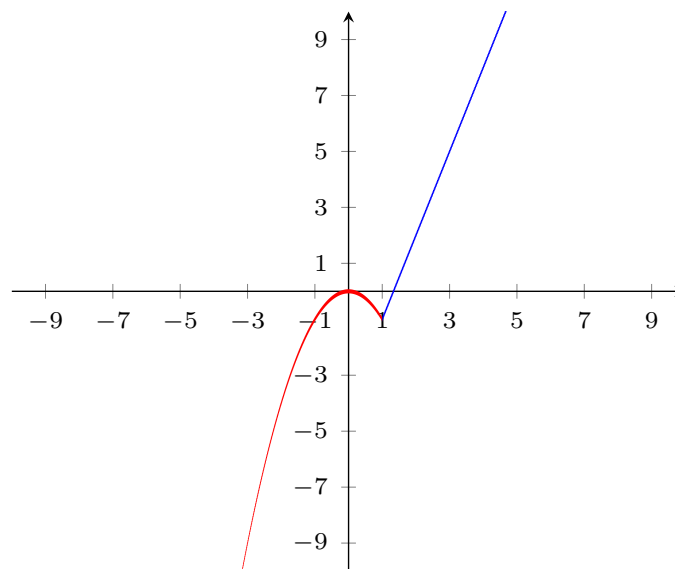
$$f(x) = \begin{cases} -x^2, & x \leq 1 \\ 3x - 4, & x > 1 \end{cases}$$

- (a) (3 points) Evaluate  $f(1)$  and  $f(3)$ .

**Solution:** Since  $1 \leq 1$ , then we need to use the top case of our piecewise function  $f(x)$ , so  $f(1) = -(1)^2 = -1$ , and  $3 > 1$ , so we need to use the bottom part,  $f(3) = 3(3) - 4 = 5$ .

- (b) (3 points) Sketch a graph of  $f(x)$ .

**Solution:**



- (c) (3 points) Find the domain and range of  $f(x)$ .

**Solution:** The **domain** of our function  $f(x)$  is all real numbers, so  $x \in \mathbb{R}$ , and using interval notation is  $x \in (-\infty, +\infty)$ .

The **range** of our function  $f(x)$  is all real numbers, so  $y \in \mathbb{R}$ , and using interval notation is  $y \in (-\infty, +\infty)$ .

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

Section (circle one):            021            022            023            024

Question:	1	Total
Points:	9	9
Score:		