

Math 105 Quiz 1 Solutions  
§1.1-§1.4

1. Give the domain and range of the following functions:

(a)  $f(x) = (x + 1)$

Domain: All real numbers, Range: All real numbers

(b)  $g(x) = (\sqrt{x + 1})^2$

Domain:  $[-1, \infty]$ , Range:  $[0, \infty]$

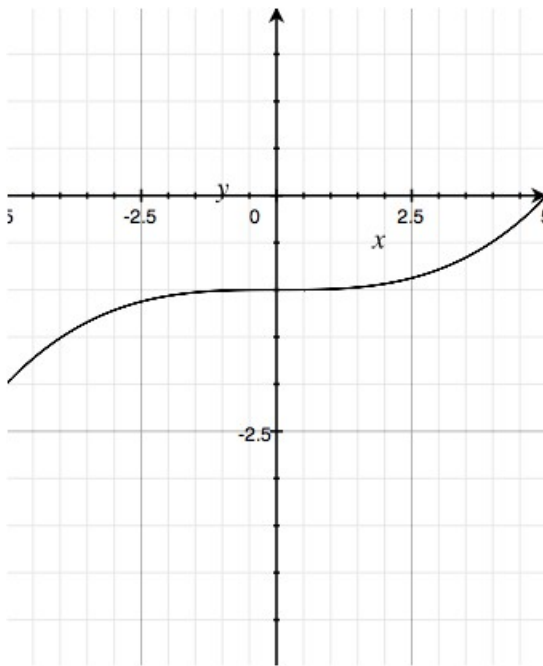
(c)  $h(x) = \frac{x^2 - 1}{x - 1}$

Domain:  $(-\infty, 1) \cup (1, \infty)$ , Range:  $(-\infty, 2) \cup (2, \infty)$

Are these functions the same function? Why or why not?

These functions are not the same. They are defined over different domains and ranges.

2. Draw a graph of a function on the interval  $[-5, 5]$  which is increasing and negative throughout the interval but changes concavity somewhere in the interval.



3. Let  $f(x)$  be an even function,  $g(x)$  be an odd function, and  $h(x)$  be a periodic function with period=4.

(a) Suppose  $f(2) = 5$ , what is  $f(-2)$ ? 5

(b) Suppose  $g(2) = 5$ , what is  $g(-2)$ ? -5

(c) Suppose  $h(2) = 5$ , what is  $h(-2)$ ? 5