

## Quiz One - Limits and Continuity

Math 101.16

Semester 141

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

ID #: \_\_\_\_\_

Serial #: \_\_\_\_\_

1. Find the following limits or show they don't exist:

(a)  $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x^2 + x - 2}$

(b)  $\lim_{x \rightarrow 0} \frac{\sqrt{x + 16} - 4}{x}$

(c)  $\lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{x^2 - 4x + 4}$

2. Find all vertical and horizontal asymptotes of the function:

$$f(x) = \frac{x - 1}{|x| - 1}.$$

Sketch the graph of the function on the back of this paper.

3. Identify the points of discontinuity of the following functions and classify them as *removable*, *jump*, or *infinite*.

(a)  $f(x) = \frac{x + 1}{|x + 1|}$

(b)  $f(x) = \frac{x^2 - 4}{x + 2}$

(c)  $f(x) = \frac{x^2 - 4}{x + 3}$