Student ID:

Student Name:

Serial Number:

Math 101, Section 32
Fall 2015, Term 151

Quiz 1
Version A

Instructions: Show Your Work!

1. (4 pts) Find the limit, if exists

(a) $\lim_{x\to 1} \frac{x^2-1}{1-\sqrt{x}}$

(b) $\lim_{x\to 1^+} \sqrt{x-1}\cdot \cos\left(\frac{\pi}{x-1}\right)$.

2. (3 pts) Use the ϵ, δ definition of a limit to prove that

$$\lim_{x\to 2} \frac{x-3}{2} = -\frac{1}{2}.$$

3. (3 pts) Consider the function

$$f(x) = \begin{cases} 8-x^2 & \text{if} \quad x \le -4, \\ [[2x]] & \text{if} \quad -4 < x < 0, \\ \frac{1}{x^2-4} & \text{if} \quad x \ge 0 \end{cases}$$

At each of the points $-5, -4, -\frac{1}{2}$ and 0, is f continuous? Justify your answer.

Student ID:

Student Name:

Serial Number:

Math 101, Section 32
Fall 2015, Term 151

Quiz 1
Version B

Instructions: Show Your Work!

1. (4 pts) Find the limit, if exists

(a) $\lim_{x\to 2} \frac{x^2-4}{\sqrt{x}-\sqrt{2}}$

(b) $\lim_{x\to 1^+} \sqrt{x-1}\cdot \cos\left(\frac{\pi}{x-1}\right)$.

2. (3 pts) Use the ϵ, δ definition of a limit to prove that

$$\lim_{x\to 1} \frac{x-3}{2} = -1.$$

3. (3 pts) Consider the function

$$f(x) = \begin{cases} 8-x^2 & \text{if} \quad x \le -4, \\ [[2x]] & \text{if} \quad -4 < x < 0, \\ \frac{1}{x^2-4} & \text{if} \quad x \ge 0 \end{cases}$$

At each of the points $-5, -4, -\frac{1}{2}$ and 0, is f continuous? Justify your answer.