Name: _____
Student ID: _____

Quiz 1

This quiz is graded out of 10 marks. No books, calculators, notes or cell phones are allowed. You must show all your work, the correct answer is worth 1 mark the remaining marks are given for the work. If you need more space for your answer use the back of the page.

Question 1. §23.1 #21 *(3 marks)* Graph the function and determine the values of x for which the functions are continuous. Explain.

$$f(x) = \begin{cases} x^2 & \text{for } x < 2 \\ 2 & \text{for } x \geq 2 \end{cases}$$

Question 2. §23.1 #38 *(3 marks)* Evaluate the indicated limits by direct evaluation. Change the form of the function where necessary.

$$\lim_{x \to 1/3} \frac{3x-1}{3x^2+5x-2}$$

Question 3. §23.1 #47 *(2 marks)* Evaluate the indicated limits by direct evaluation. Change the form of the function where necessary.

$$\lim_{t \to \infty} \frac{\sqrt{t^2+16}}{t+1}$$

Question 4. §23.1 #64 *(2 marks)* Explain why

$$\lim_{x \to 0^+} 2^{1/x} \neq \lim_{x \to 0^-} 2^{1/x}.$$