Calculus I (MAC 2311)
Practice Test 1 Time: 30 minutes

Write your answer for each question in the corresponding box. Only the answer in the box will be graded. Neatly do the work to support your answer in the blank space provided. Each question is worth 1 point. Note: Use of any calculator will be considered as academic dishonesty.

Name: _____

Section and NID/PID: _____

1. Find the domain of the function $f(x) = \dfrac{1}{x^2+1}$.

2. Find the inverse function of $y = x + \dfrac{1}{x}$.

3. If $f \circ g \circ h = \arctan(\sqrt{|x|+5})$, find functions that can qualify as f, g and h.

4. Find infinite limit: $\lim_{x \to \frac{\pi}{2}^-} \tan(x)$.

5. Determine the limit, if it exists: $\lim_{x \to 1} \frac{|x|-1}{x-1}$.

6. Find the limit, if it exists: $\lim_{x\to 2} f(x)$ for $f(x) = |x| + x$.

7. Obtain the limit, if it exists: $\lim_{u\to 2} \frac{\sqrt{5u+6}-1}{u-3}$.

8. Is $f(x) = \pi x \cos(\frac{\pi}{x})$ an even or odd or neither function?

9. A bacteria culture starts with 300 bacteria and doubles in size every half hour. How many bacteria are there after 4 hours?

10. Find the domain of $f(t) = \sqrt{1-3^t}$.