Calculus I Name:_____

TA/classroom:_____ Student ID:_____

Quiz 3

Oct. 24, 2007

1. (10 pts) Determine the value of a that makes the given function continuous at $x = 0$.

$$f(x) = \begin{cases} ae^x + 2 & \text{if } x < 0 \\ a^5x^5 + a^2x^2 + x - a & \text{if } x \geq 0 \end{cases}$$

2. Determine the following limits (answer as appropriate, with a number, $-\infty$, ∞ or does not exist).

   - (3 pts) $\lim_{x \to 2^-} \dfrac{x}{2-x}$

   - (3 pts) $\lim_{x \to 2^+} \dfrac{x}{2-x}$

   - (4 pts) $\lim_{x \to +\infty} \dfrac{x}{2-x}$