

**Math 124 Quiz #2**  
**April 15, 2008**

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

Show all work.

1. (3 pts.) Write **equations** for the horizontal and vertical asymptotes of the function  $f(x) = \frac{1-x}{3x+6}$ .

2. (4 pts.) Evaluate the following limits. If the limit is infinite, determine whether it is  $+\infty$  or  $-\infty$ .

(a) (2 pts.)  $\lim_{x \rightarrow -\infty} \frac{-x^5 + 3}{25x^4 - 10x^2 + 8}$

(b) (2 pts.)  $\lim_{t \rightarrow 3} \frac{2}{\sqrt{\sin(\pi t) + t + 2}}$

3. (3 pts.) For what values of  $x$  is  $g(x)$  **continuous** if it is defined by  $g(x) = \begin{cases} \frac{1}{x-1} & \text{if } x > 0 \\ x^2 - 1 & \text{if } x \leq 0 \end{cases}$  ?