

Math 151 Quiz #3
October 14, 2008

Name: _____

Show all work.

1. (3 pts.) Write all of the **equations** for the horizontal and vertical asymptotes of the function

$$f(x) = \frac{3x+5}{x^2-x-6}.$$

2. (4 pts.) Evaluate the following limits. **Show work** or **justify** your answers. Simplify your answers as much as possible.

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

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

3. (3 pts.) Find the slope of the tangent line of $f(x) = 3x^2 + x$ at $x = 2$ using the limit definition (see below).

Notes: Slope of tangent of f at $a = f'(a) = \lim_{x \rightarrow a} \frac{f(x) - f(a)}{x - a}$ or $\lim_{h \rightarrow 0} \frac{f(a+h) - f(a)}{h}$

