Prof. Haiman Math 1A—Calculus Fall, 2004

Quiz 3 solutions—version B

Name _____ Student ID Number _____

1. Evaluate

$$\lim_{x\to-\infty} \frac{2x^3+7x}{5x^3-6},$$

and give the equation of a line which is a horizontal asymptote to the graph of the function

$$f(x) = \frac{2x^3+7x}{5x^3-6}.$$

$$\lim_{x\to-\infty} \frac{2x^3+7x}{5x^3-6} = 2/5.$$

A horizontal asymptote is $y = 2/5$.

2. For the function

$$f(x) = \frac{x}{2x-1}$$

find the derivative $f'(x)$, and specify the domains of f and f'.

The derivative is $f'(x) = -1/(2x-1)^2$. Both f and f' have domain $\{x|x \neq 1/2\}$.