

Your name: _____

TA's name: _____

Problem #1: Evaluate the following limits:

a) $\lim_{x \rightarrow 7} \frac{x^2 - 2x - 35}{2x^2 - 11x - 21}$

b) $\lim_{x \rightarrow -5} \frac{\frac{1}{5} + \frac{1}{x}}{5 + x}$

c) $\lim_{x \rightarrow 3} \frac{\sqrt{3x-5} - 2}{x-3}$

Problem #2: Evaluate the following limits:

a) $\lim_{x \rightarrow \infty} \frac{\cos x}{x^2}$

b) $\lim_{x \rightarrow \infty} \frac{4x^3 - 5x + 1}{7x^4 + 3x^2 - x}$

c) $\lim_{x \rightarrow \infty} \frac{e^{-x} + 5}{e^{-2x} + 4}$

Problem #3: Use the definition of the derivative to find $f'(x)$.

$$f(x) = 3x^2 - 5x + 4$$

Problem #4: Use the definition of the derivative to find $f'(x)$ at $x = 2$.

$$f(x) = \frac{12}{3x-1}$$

