

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

Math 231 Quiz 2

1. (8 pts) Evaluate the limit, if it exists.

$$(a) \lim_{h \rightarrow 0} \frac{\sqrt{1+h} - 1}{h}$$

$$(b) \lim_{x \rightarrow 2} \frac{\frac{1}{x} - \frac{1}{2}}{x - 2}$$

2. (12 pts) Evaluate the limit, if it exists.

(a)  $\lim_{n \rightarrow \infty} \frac{n^2 + n + 2}{n^2 + n}$

(b)  $\lim_{x \rightarrow -\infty} \frac{6x^2 - 6x + 1}{12x - 6}$

(c)  $\lim_{x \rightarrow -\infty} \frac{6x^2 - 6x + 1}{2x^3 - 3x^2 + x}$

(d) (Bonus)  $\lim_{x \rightarrow \infty} \left( \sqrt{x+1} - \sqrt{x} \right)$  (*hint: rationalize the expression*)