Quiz #2 Key Math 1131 September 17, 2014

Name: _____ Section: _____

You have 12 minutes to complete the quiz. Please **show all work**, and then **circle your answer.**

1. Evaluate the following limit **showing all work** (fastest term)

$$\lim_{x\to\infty} \frac{x+4x^2+2}{2x^2+3x+1}$$

(fastest term)

$$= \lim_{x\to\infty} \frac{x^2\left(\frac{1}{x}+4+\frac{2}{x^2}\right)}{x^2\left(2+\frac{3}{x}+\frac{1}{x^2}\right)}$$

(1/x → 0, 2/x² → 0, 3/x → 0, 1/x² → 0)

2pt

$$= \frac{4}{2}$$

2pt

$$= 2$$

2. Evaluate the following limit **showing all work**

$$\lim_{x\to 3^+} \frac{x^2-9}{x^2-6x+9}$$ ← Cannot plug in 3 bottom goes to 0.

2pt

$$= \lim_{x\to 3^+} \frac{(x+3)(x-3)}{(x-3)(x-3)}$$

$$= \lim_{x\to 3^+} \frac{x+3}{x-3}$$ ← CANNOT plug in 3

$$\Longrightarrow \lim_{x\to 3^+} \frac{x+3}{x-3} = \infty$$

1pt

$\approx \frac{\text{just over 6}}{\text{just over 0}}$

$\approx \frac{6}{\text{small pos}} \approx$ BIG pos

1pt

3. Evaluate the following limit **showing all work**

$$\lim_{x\to 2} \frac{x^2-8}{x^2+8}$$

Can plug in 2 Because bottom does NOT go to 0

2pt

$$= \frac{\lim_{x\to 2}(x^2-8)}{\lim_{x\to 2}(x^2+8)}$$

$$= \frac{4-8}{4+8} = \frac{-4}{12} = \frac{-1}{3}$$