NAME _____ JUNE 27, 2018

Quiz #4

1. Use the Squeeze Theorem to find $\lim_{x\to 0} |x| \sin^2\left(\frac{1}{x}\right)$. [2]

2. Use the Intermediate Value Theorem to argue that $f(x) = x^3 - 2x$ has a root in the closed interval $[1, 2]$. Recall that $f(x)$ has a root at $x = c$ if $f(c) = 0$. [2]

3. Evaluate the limit, if it exists. If the limit does not exist, write ∞, $-\infty$, or **DNE**.

a. $\lim_{x\to -\infty} \frac{3x^2 - 3x + 2}{4x - 2x^2}$ [2]

b. $\lim_{t\to \infty} \frac{\sqrt{t^2 + 4} - 2}{5t}$ [2]

c. $\lim_{t\to \infty} \sqrt{t^2 + 4t} - t$ [2]