

235 EXAM 1

You may use your notebook during the last ten minutes of this exam.

You may NOT use calculators, cell phones, loose papers, or peeking.

Small numbers to the right of the problems indicate similar homework exercises.

Math 235

February 15, 2013

Name: _____

By printing my name I pledge to uphold the honor code.

1. Fill in the blanks based on theorems from Chapter 1. *1.4 #1 and Chapter Review*
- a) If f is _____ on $[-2, 6]$, then f must have a _____ and a _____ value on $[-2, 6]$.
- b) If f is _____ on $[-2, 6]$, and if _____ and _____, then f has a root somewhere on the interval $[-2, 6]$.
- c) If f _____ on $[-2, 6]$, then for any K with _____, there exists at least one $c \in (-2, 6)$ such that _____.
2. Calculate the following limits. *1.6 #35-80 and Chapter Review*
- a) $\lim_{x \rightarrow 2} \frac{1}{2 - x}$
- b) $\lim_{x \rightarrow -\infty} e^x \tan^{-1} x$
- c) $\lim_{x \rightarrow 0} \frac{x}{x^2 - x}$
- d) $\lim_{x \rightarrow 0} \frac{\sin 3x}{5x}$

TURN OVER →

3. Write the following limits in terms of the formal definition of limit, using quantifiers and δ , ϵ , M , and/or N as appropriate. 1.2 #19-42

(Just write down the statements; do NOT write any proofs.)

a) $\lim_{x \rightarrow 1^-} \sqrt{1-x} = 0$

b) $\lim_{x \rightarrow \infty} \frac{x}{1-2x} = -0.5$

4. Write a delta-epsilon proof for the limit statement $\lim_{x \rightarrow 0} (x^2 + 4) = 4$. 1.3 #53

5. Circle ONE thing in each row. 1.6 #7,8,9

The limit form $\frac{0}{\infty}$ is: (0) (1) (e) (∞) (indeterminate)

The limit form $\frac{\infty}{\infty}$ is: (0) (1) (e) (∞) (indeterminate)

The limit form $\frac{1}{\infty}$ is: (0) (1) (e) (∞) (indeterminate)

The limit form $\infty - \infty$ is: (0) (1) (e) (∞) (indeterminate)

The limit form $\infty \cdot \infty$ is: (0) (1) (e) (∞) (indeterminate)

sCRAP

I will not be grading anything on this page

BY COLORING INFINITY YOUR MIND BECOMES CLEAR:

