

232 TEST 1

*You may use your notebook during the last fifteen minutes of this exam.
You may NOT use calculators, cell phones, loose papers, or peeking.*

Math 232
September 23, 2011

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

1. True or false?

T F Every point (x, y) on the unit circle satisfies $x^2 + y^2 = 1$.

T F All exponential growth functions have a constant tripling time.

T F If $Q(t)$ is an exponential function with yearly percentage growth rate r , then $Q'(t) = rQ(t)$.

T F The sine of a sum of angles is equal to the sum of the sines of the angles.

T F If the terminal edge of an angle θ is in the third quadrant, then the values of all six trigonometric functions of θ are negative.

T F Every exponential function has a horizontal asymptote at $y = 0$.

2. Determine whether each of the following values is zero, positive, negative, or undefined. (Hint: Each answer is used one time.)

$\ln\left(\frac{1}{e^2}\right)$ (zero) (positive) (negative) (undefined)

$\log_{\frac{1}{2}} 1$ (zero) (positive) (negative) (undefined)

$\sec \frac{7\pi}{8}$ (zero) (positive) (negative) (undefined)

$\sin\left(-\frac{14\pi}{5}\right)$ (zero) (positive) (negative) (undefined)

3. Circle the correct answer for each limit. (Hint: Each answer is used exactly once.)

$$\lim_{x \rightarrow \frac{\pi}{2}} \frac{\sin(2 \cos x)}{\cos x} \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

$$\lim_{x \rightarrow \frac{\pi}{2}} (\tan x - \sec x) \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

$$\lim_{x \rightarrow 0^+} e^x \ln x \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

$$\lim_{x \rightarrow \infty} \frac{2^x + 1}{e^{-x}} \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

$$\lim_{x \rightarrow 0^+} (1 + 2x)^{\frac{1}{2x}} \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

$$\lim_{x \rightarrow 2^+} \frac{\sqrt{x-2}}{\sin \sqrt{x-2}} \quad 0 \quad 1 \quad 2 \quad e \quad \infty \quad -\infty$$

4. Calculate the derivatives of the functions below.

a) $f(x) = 2e^{3\cos x \csc x}$

b) $f(x) = \tan^2(x^3)$

c) $f(x) = (\sin x)^x$

sCRAP

(I will not be grading anything on the scrap page but you must hand it in with your name on it)

STRESSED OUT?

TAKE A BREAK TO COLOR INFINITY: ∞