

232 TEST 2

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

Math 232
March 16, 2012

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

1. Determine whether each of the following is True (T) or False (F).
(similar to #1 in 7.1, 7.2, 8.1)

T F If f is positive and decreasing on $[a, b]$, then any Right Sum for f on $[a, b]$ will be an underapproximation.

T F If f is positive and concave up on $[a, b]$, then any Trapezoid Sum for f on $[a, b]$ will be an overapproximation.

T F If $f(x) - g(x) = 3$ for all x , then f and g have the same antiderivative.

T F If $f(x) - g(x) = 3$ for all x , then f and g have the same derivative.

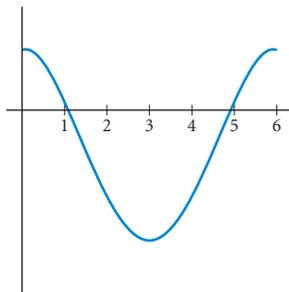
T F $\int \frac{1}{x^2 + 1} dx = \ln|x^2 + 1| + C.$

T F $\sum_{k=0}^n a_k = a_0 + \sum_{k=1}^n a_k.$

2. Let f be the function shown below, and define $A(x) = \int_0^x f(t) dt$. Answer each question by filling in the blanks.

(similar to #15 in 8.3)

This is a graph of f :



$A(x)$ is positive on the interval(s) _____

$A(x)$ is increasing on the interval(s) _____

$A(x)$ is zero at the point(s) _____

WARNING: The questions above concern the function A , which is NOT the function that is in the picture.

3. Calculate each of the following integrals. Show **ONLY RELEVANT WORK**.

(similar to #23 in 8.2 and #38 in 9.1)

a) $\int \frac{\sin(\ln x)}{x}$

b) $\int_2^4 \frac{1}{\sqrt{x^7}} dx$

4. Write down the sigma notation for the general n -rectangle Midpoint Sum approximation for $\int_0^5 \sin x dx$ in such a way that the only letters that appear in the general term of the sum are n and k . Show any **RELEVANT** work clearly and in order.

DO NOT SOLVE THE INTEGRAL OR ATTEMPT TO COMPUTE THE SUM.

(similar to #38 in 7.2 and #33–38 in 7.3)

5. Write down a sum of definite integrals that do not have any absolute values in them to represent the area between the graphs of $f(x) = 4 - x^2$ and $g(x) = 5x$ on the interval $[0, 3]$. It should help to draw a picture. Show any **RELEVANT** work clearly and in order.

DO NOT ATTEMPT TO SOLVE THE INTEGRALS.

(similar to #37–42 in 7.4)

sCRAP

I will not be grading anything on this page but you must hand it in with your NAME: _____

STRESSED OUT?

TAKE A BREAK TO DRAW REALLY, REALLY TINY ANIMALS: