MATH 129-020:
TEST 1
MAKE-UP

SPRING 2019

Name	
I.D. Number	

Question	Points	Score
1	10	
2	10	
3	10	
4	10	
5	10	
6	10	
Total	60	

Directions: This work is an optional assignment for those who took the first test on Tuesday, February 5th. It is due on Thursday, February 14th at the beginning of class. No late work will be accepted. If you turn this in, I will grade it and your new grade on test 1 will be the average (out of 100%) of the two scores you have received. If you do not turn this in, your grade on test 1 will stay the same.

Show all work on calculating the integrals below, unless you are told you can use the integration table. When you use the integration table, indicate which number you are using.

(1) Calculate the following: Do **not** use an integration table.

a)

$$\int x^5 \cos(x^3)\, dx$$

b)

$$\int \frac{3t-2}{\sqrt[5]{1-\pi t}}\, dt\,.$$

(2) Suppose that f has three continuous derivatives on $[0, b]$. If you know that $f''(b) = 2$, $f'(b) = -3$, $f(b) = 1$, and $f(0) = 0$, calculate

$$\int_0^b x^2 f'''(x)\, dx\,.$$

(3) Calculate the following integrals. (You **may** use an integration table.)

a)

$$\int \frac{1}{\sqrt{3 - t^2 + 7t}}\, dt\,.$$

b)

$$\int (2x^5 - 3x^2 + 1)\sin(\pi x)\, dx\,.$$

(4) Integrate the following. You may **not** use an integration table. For full credit, show your work.

$$\int \frac{e^{2x}}{(e^{4x}+1)(e^{2x}-2)^2}\,dx\,.$$

(5) Sketch the following graph and find the area enclosed by it:

$$16x^2 + 4y^2 = 25$$

(6) Consider the function

$$f(x) = \frac{1}{3 + x + x^2}\,.$$

a) On the interval $[1, 3]$, determine whether the function f given above is increasing or decreasing? Based on your answer, order LEFT(n), RIGHT(n), and $\int_1^3 f(x)dx$ from smallest to largest. Check your result by calculating LEFT(2) and RIGHT(2).

b) Repeat part a) on the interval $[-3, -1]$.

c) On the interval $[1, 3]$, find MID(2) and TRAP(2).