MATH 122
Exam 2 - Corrections
Extra Problems

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Name: _____

Instructions:

1. Complete all of the following problems in order to earn 50% of the points back that you missed on Exam2.
2. You must include explanations of what you are doing at each step.
3. A student just learning these topics should be able to use your problems as a study guide!

	Score
1	/0
2	/3
3	/3
4	/2
5	/2
Total	/10

Problem 1 (0 points)

What were your main areas of confusion on Exam 2?

What are some ways that you could change your approach to studying math or preparing for exams?

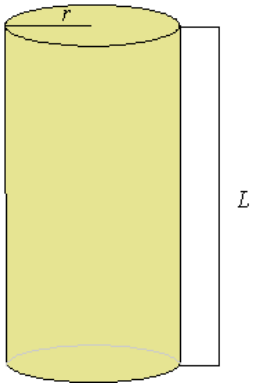
What are some things that you really do know better than you were able to show on this exam?

Problem 2 (3 points)

(a) First draw the area bounded by the curves $3x+y=6$ and $y=x^2-4$, then use integration to find the value for the area bounded by the two curves.

(b) First draw the area of the upper quarter circle bounded by $x^2+y^2=16$, the x-axis and the y-axis, then use integration to find the values for the area.

(c) Write a Riemann sum and then a definite integral representing the volume of the region in the figure. Evaluate the integral exactly and show that the volume of a right circular cylinder is $V=\pi r^2 L$.



Problem 3 (3 points)

(a) Find the volume of the solid generated by rotating the region bounded by $y = (x+1)^2,\ y = 0,\ x = 1,\ x = 2$ about the x-axis.

(b) Find the volume of the solid generated by rotating the region bounded by $y = e^{3x},\ y = e^x,\ x = 0,\ x = 1$ about the x-axis.

(c) Find the volume of the solid generated by rotating the region bounded by $y = x^2,\ y = 0,\ y = 1$ about the line $y = -2$.

Problem 4 (2 points)

(a) A rectangular water tank has length 20m, width 10m, and depth 15m. If the tank is full, how much work does it take to pump all the water out? (density of water: $1000\frac{kg}{m^3}$)

(b) A 10 meter uniform chain with a mass of 5 kilograms per meter is dangling from the roof of a building. How much work is needed to pull the chain up onto the top of the building? (acceleration of gravity: $9.8\frac{m}{s^2}$

Problem 5 (2 points)

Find the mass of the solid created by rotating the region bounded by $y = x$, $y = x^2$ about the x-axis, if the density is $\delta(x) = x + 1\frac{kg}{m^3}$.

Find the mass of the region bounded by $y = \sin(x)$ and $y = 0$ between $x = 0$ and $x = \pi$, if the density is $\delta(x) = x$.