MATH 2242-090 — Spring 2016 — Dr. Clontz — Quiz 6

Name: Solutions

- Each quiz question is labeled with its worth toward your total quiz grade for the semester.
- On multiple choice problems, you do not need to show your work. No partial credit will be given.
- On full response problems, show all of your work and give a complete solution. When in doubt, don't skip any steps. Partial credit will be given at the discretion of the professor.
- This quiz is open notes and open book.
- This quiz is due at the end of class. Quizzes submitted over one minute late will be penalized by 50%.

1. (10 points) Evaluate $\int_1^2 \left[\int_{1/x}^{2/x} xe^x \, dy\right] dx$.

$$= \int_1^2 \left[ y(xe^x) \right]_{1/x}^{2/x} dx$$

$$= \int_1^2 \frac{2}{x} xe^x - \frac{1}{x} xe^x \, dx$$

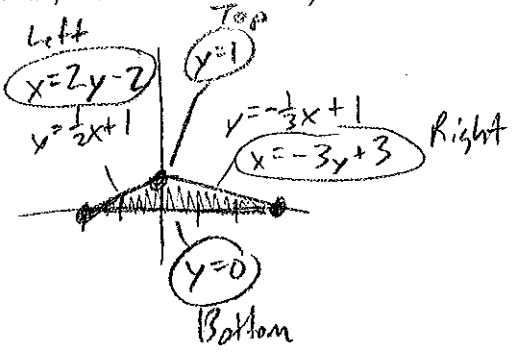
$$= \int_1^2 2e^x - e^x \, dx$$

$$= \int_1^2 e^x \, dx$$

$$= \left[ e^x \right]_1^2$$

$$= \boxed{e^2 - e}$$

2. (10 points) Write the double integral $\iint_T xy \, dA$ as an iterated integral (i.e. set up the bounds, but don't evaluate) where $T$ is the triangle with vertices $(-2, 0)$, $(0, 1)$, $(3, 0)$.




$$\iint_T xy \, dA = \boxed{\int_0^1 \int_{2y-2}^{-3y+3} xy \, dx \, dy}$$

(Using additivity!

$$\int_{-2}^{0} \int_{0}^{\frac{1}{2}x+1} xy \, dy \, dx + \int_{0}^{3} \int_{0}^{-\frac{1}{3}x+1} xy \, dy \, dx$$

)