MATH 203 Calculus III
Homework 13

Basic Information
This assignment is due on Gradescope by **3 PM on Friday, November 1**.

Make sure you understand MHC honor code and have carefully read and understood the additional information on the class syllabus. I am happy to discuss any questions or concerns you have!

Since this is a 200-level mathematics course, quite a few homework questions will ask you to explain your reasoning or process for solving a problem. Whenever possible, write your explanations in complete sentences and write your answers as if you were explaining to a peer in the class.

The homework problems will be graded anonymously so please do not put your name or other identifying information on the pages.

Turn In Problems
- 13.1 6b, 8b, 10b
- 13.2 6
- #5. Find a Cartesian equation for the curve described by the polar equation . $r\cos(\theta) = 1$.
- #6. *Without computing any integrals nor using problem 7*, determine $\iint_R 3\ dA$ for $R = [-2,\ 2] \times [1,\ 6]$. Suggestion: this represents the volume of a well known shape.
- #7. If f is a constant function, $f(x, y) = k$ for some constant k, and $R = [a,\ b] \times [c,\ d]$, show that $\iint_R f(x, y)\ dA = k(b - a)(d - c)$.
- #8. Calculate $\int_0^1 \int_1^2 \frac{xe^{x^2}}{y}\ dy\ dx$.

Additional Problems (to do on your own, not to turn in)
- 13.1: 5b, 7b, 9b
- 13.2: 5, 13
- Calculate $\int_0^1 \int_0^1 xy\sqrt{x^2 + y^2}\ dy\ dx$.