Math 2300 Calculus 2, Spring 2020
Exam 1 Formulas to Memorize

Students: You will be expected to have the following formulas memorized for the first exam, and for the remainder of the course. Consider this document fair warning. If any of the integrals are standalone problems, you must show all your work. If any of the integrals are embedded within a larger problem, you can use the integrals without showing work.

Trigonometric Identities:

1. $\sin^2(x) + \cos^2(x) = 1$
2. $\tan^2(x) + 1 = \sec^2(x)$
3. $\sin(2x) = 2\sin(x)\cos(x)$
4. $\sin^2(x) = \dfrac{1 - \cos(2x)}{2}$
5. $\cos^2(x) = \dfrac{1 + \cos(2x)}{2}$

Integrals:

1. $\displaystyle\int \sec(x)dx = \ln|\sec(x) + \tan(x)| + C$
2. $\displaystyle\int \csc(x)dx = -\ln|\csc(x) + \cot(x)| + C$
3. $\displaystyle\int \sec^3(x)dx = \frac{1}{2}\sec(x)\tan(x) + \frac{1}{2}\ln|\sec(x) + \tan(x)| + C$
4. $\displaystyle\int \frac{1}{x^2 + a^2}dx = \frac{1}{a}\arctan\left(\frac{x}{a}\right) + C$
5. $\displaystyle\int \frac{1}{\sqrt{a^2 - x^2}}dx = \arcsin\left(\frac{x}{a}\right) + C$