Basic Antiderivatives

These are the antiderivative formulas you should memorize for Math 3B. Antiderivatives of more complicated functions can be computed from these using techniques like u-substitution, integration by parts, partial fractions, trig substitution, etc. For a longer list of antiderivative formulas, see your textbook. In Stewart's *Single Variable Calculus*, there is a table in the back watermark.

$$\begin{aligned}
\int x^n \, dx &= \frac{x^{n+1}}{n+1} + C, n \neq -1 \\
\int \frac{1}{x} \, dx &= \ln|x| + C \\
\int e^x \, dx &= e^x + C \\
\int \sin x \, dx &= -\cos x + C \\
\int \cos x \, dx &= \sin x + C \\
\int \sec^2 x \, dx &= \tan x + C \\
\int \sec x \tan x \, dx &= \sec x + C \\
\int \csc^2 x \, dx &= -\cot x + C \\
\int \cot x \csc x \, dx &= -\csc x + C \\
\int \frac{1}{x^2+1} \, dx &= \arctan x + C \\
\int \frac{1}{\sqrt{1-x^2}} \, dx &= \arcsin x + C \\
\int \frac{1}{x\sqrt{x^2-1}} \, dx &= \operatorname{arcsec} x + C
\end{aligned}$$