8.1: Basic Approaches (to Integration)

Example. Derive the integral formula $\displaystyle\int \sec(ax)\,dx = \frac{1}{a}\ln|\sec(ax)+\tan(ax)| + C.$

Example. Evaluate $\displaystyle\int \frac{dx}{e^{3x}+e^{-3x}}$.

Example. Evaluate $\displaystyle\int \frac{\sin(x)+\cos^4(x)}{\csc(x)}\,dx.$

Note: $\begin{cases} \cos^2(x) = \dfrac{1+\cos(2x)}{2} \\ \sin^2(x) = \dfrac{1-\cos(2x)}{2} \end{cases}$

Example. Evaluate $\displaystyle\int \frac{2x^2+3x-4}{x-2}\,dx.$

Example. Evaluate $\displaystyle\int \frac{dx}{\sqrt{7-6x-x^2}}$.