

1 8.6: Integration Strategies

Example. What integration methods can be used to evaluate the functions below?
(No need to evaluate the integral)

$$\int \frac{1}{1-x^2} dx$$

$$\int x \sec^2(x) dx$$

$$\int \frac{x}{\sqrt{64-x^2}} dx$$

$$\int \frac{x^3}{\sqrt{64-x^2}} dx$$

Example. Identify two integration techniques which can be used to evaluate

$$\int \frac{4 - 3x^2}{x(x^2 - 4)} dx.$$

Example. Perform a substitution of variables to rewrite $\int x \sin(\sqrt{x}) dx$.

Example. $\int_1^3 \frac{\tan^{-1}(\sqrt{x})}{x^{1/2} + x^{3/2}} dx$