

Use the following table of integrals to evaluate the integral.

$$\int \sec^3 u \, du = \frac{1}{2} \sec u \tan u + \frac{1}{2} \ln |\sec u + \tan u| + C$$

$$\int \frac{\sqrt{a^2 - u^2}}{u^2} \, du = -\frac{1}{u} \sqrt{a^2 - u^2} - \sin^{-1} \left( \frac{u}{a} \right) + C$$

$$\int \frac{du}{u^2 \sqrt{u^2 - a^2}} = \frac{\sqrt{u^2 - a^2}}{a^2 u} + C$$

$$\int u \cos^{-1} u \, du = \frac{2u^2 - 1}{4} \cos^{-1} u - \frac{u \sqrt{1 - u^2}}{4} + C$$

$$\int \frac{u \, du}{\sqrt{a + bu}} = \frac{2}{3b^2} (bu - 2a) \sqrt{a + bu} + C$$

$$\int \frac{\sqrt{u^2 - a^2}}{u} \, du = \sqrt{u^2 - a^2} - a \cos^{-1} \left( \frac{a}{|u|} \right) + C$$

1)  $\int \frac{\sqrt{7 - 2x^2}}{x^2} \, dx$

2)  $\int_2^3 \frac{1}{x^2 \sqrt{4x^2 - 7}} \, dx$

3)  $\int \sqrt{e^x - 1} dx$

4)  $\int \frac{3x}{\sqrt{3-2x}} dx$

5)  $\int \sec^3(\pi x) dx$

6)  $\int_0^1 2x \cos^{-1} x dx$