

A Mixture of Integrals:

$$1. \int \cos x e^{\sin x} dx = e^{\sin x} + C$$

$$2. \int x \sec^2(x) dx = x \tan(x) + \ln|\cos(x)| + C$$

$$3. \int \frac{dx}{x^2 + 2x + 10} = \arctan(x + 1) + C$$

$$4. \int e^x \sqrt{e^x + 1} dx = \frac{2}{3} (e^x + 1)^{3/2} + C$$

$$5. \int \frac{x^3}{1 - x^2} dx = \frac{1 - x^2 - \ln|1 - x^2|}{2} + C$$

$$6. \int \frac{x + 1}{(x^2 + 2x + 10)^5} dx = \frac{-1}{8(x^2 + 2x + 10)^4} + C$$

$$7. \int_1^2 \ln x dx = 2 \ln(2) - 1$$

$$8. \int \frac{\cos 3x}{\sqrt{1 - 2 \sin 3x}} dx = -\frac{\sqrt{1 - 2 \sin(3x)}}{3} + C$$

$$9. \int r^2 \sec^2 r^3 dr = \frac{\tan(r^3)}{3} + C$$

$$10. \int_1^5 x \sqrt{x + 2} dx = \frac{2(7^{5/2} - 3^{5/2})}{5} - \frac{4(7^{3/2} - 3^{3/2})}{3}$$