9.6 Integrals of Exponential and Logarithmic Functions

1009. $\int e^x dx = e^x + C$

1010. $\int a^x dx = \frac{a^x}{\ln a} + C$

1011. $\int e^{ax} dx = \frac{e^{ax}}{a} + C$

1012. $\int xe^{ax} dx = \frac{e^{ax}}{a^2}(ax - 1) + C$

1013. $\int \ln x \, dx = x \ln x - x + C$

1014. $\int \frac{dx}{x \ln x} = \ln|\ln x| + C$

1015. $\int x^n \ln x \, dx = x^{n+1}\left[\frac{\ln x}{n+1} - \frac{1}{(n+1)^2}\right] + C$

1016. $\int e^{ax} \sin bx \, dx = \frac{a \sin bx - b \cos bx}{a^2 + b^2} e^{ax} + C$

1017. $\int e^{ax} \cos bx \, dx = \frac{a \cos bx + b \sin bx}{a^2 + b^2} e^{ax} + C$