

9.6 Integrals of Exponential and Logarithmic Functions

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

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

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

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

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

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

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

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

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