Eight "Named Integrals"

$$\int e^{-x^2}\,dx = \frac{\sqrt{\pi}}{2}\operatorname{erf}(x) + C$$

$$\int e^{x^2}\,dx = \frac{\sqrt{\pi}}{2}\operatorname{erfi}(x) + C$$

$$\int \frac{e^{x^2}}{x}\,dx = \operatorname{Ei}(x) + C$$

$$\int \frac{1}{\ln x}\,dx = \operatorname{li}(x) + C$$

$$\int \frac{\sin x}{x}\,dx = \operatorname{Si}(x) + C$$

$$\int \frac{\cos x}{x}\,dx = \operatorname{Ci}(x) + C$$

$$* \int \sin x^2\,dx = \begin{cases} \operatorname{S}(x) + C \\ \sqrt{\frac{\pi}{2}}\operatorname{S}\left(\sqrt{\frac{2}{\pi}}x\right) + C \end{cases}$$

$$* \int \cos x^2\,dx = \begin{cases} \operatorname{C}(x) + C \\ \sqrt{\frac{\pi}{2}}\operatorname{C}\left(\sqrt{\frac{2}{\pi}}x\right) + C \end{cases}$$

* The Fresnel integrals S(*x*) and C(*x*) are two transcendental functions named after Augustin-Jean Fresnel that are used in optics and are closely related to the error function (erf).