Solution (#1305) For each of the integrals employ the fundamental theorem of calculus.

$$\int_{-1}^{2} 3^x \, \mathrm{d}x = \frac{26}{3\ln 3}. \qquad \int_0^{\infty} e^{-2x-1} \, \mathrm{d}x = \frac{1}{2e}. \qquad \int_{-3}^{-2} e^{|x|} \, \mathrm{d}x = e^3 - e^2.$$

$$\int_{-\infty}^{\infty} e^{-|x|} \mathrm{d}x = 2. \qquad \int_{-\infty}^{\infty} e^{-|x-a|} \mathrm{d}x = 2. \qquad \int_0^{\infty} e^{-|x-a|} \mathrm{d}x = \begin{cases} 2 - e^{-a} & \text{if } a \geqslant 0; \\ e^a & \text{if } a < 0. \end{cases}$$