28. $\int_{\ln 3}^{\ln 6} 8e^x\,dx = [8e^x]_{\ln 3}^{\ln 6} = 8\left(e^{\ln 6} - e^{\ln 3}\right) = 8\,(6-3) = 24$

29. $\displaystyle\int_8^9 2^t\,dt = \left[\frac{1}{\ln 2}2^t\right]_8^9 = \frac{1}{\ln 2}\left(2^9 - 2^8\right) = \frac{1}{\ln 2}\cdot 2^8\left(2^1 - 1\right) = \frac{2^8}{\ln 2}$, or $\dfrac{256}{\ln 2}$

30. $\int_{\pi/3}^{\pi/2} \csc x\,\cot x\,dx = [-\csc x]_{\pi/3}^{\pi/2} = \left(-\csc\tfrac{\pi}{2}\right) - \left(-\csc\tfrac{\pi}{3}\right) = -1 + \tfrac{2}{3}\sqrt{3}$

31. $\displaystyle\int_1^{\sqrt{3}} \frac{6}{1+x^2}\,dx = 6\left[\tan^{-1}x\right]_1^{\sqrt{3}} = 6\left(\tan^{-1}\sqrt{3} - \tan^{-1}1\right) = 6\left(\frac{\pi}{3} - \frac{\pi}{4}\right) = 6\left(\frac{\pi}{12}\right) = \frac{\pi}{2}$