14. $\int \frac{\cos x}{\sin^4 x}\,dx$

$= \int \frac{\cos x}{(\sin x)^4}\,dx$

$u = \sin x \quad du = \cos x\,dx$

$= \int \frac{1}{u^4}\,du$

$= \int u^{-4}\,du$

$= \frac{u^{-4+1}}{-4+1} + C$

$= \frac{u^{-3}}{-3} + C$

$= \frac{1}{-3u^3} + C$

$= \frac{1}{-3\sin^3 x} + C$

15. $\int \frac{e^{3x} + 4e^x + 1}{e^x}\,dx$

$= \int \left(\frac{e^{3x}}{e^x} + \frac{4e^x}{e^x} + \frac{1}{e^x}\right)dx$

$= \int \left(e^{2x} + 4 + e^{-x}\right)dx$

$= \int e^{2x}\,dx + \int 4\,dx + \int e^{-x}\,dx$

$u = 2x \quad du = 2\,dx$

$w = -x \quad dw = -dx$

$= \frac{1}{2}\int 2e^{2x}\,dx + 4x - \int -e^{-x}\,dx$

$= \frac{1}{2}\int e^u\,du + 4x - \int e^w\,dw$

$= \frac{1}{2}e^u + 4x - e^w + C$

$= \frac{1}{2}e^{2x} + 4x - e^{-x} + C$