Quiz 7

$$\int \underbrace{x^2}_{u} \underbrace{e^{4x}\,dx}_{dv} = \frac{1}{4}x^2e^{4x} - \int \underbrace{\frac{x}{2}}_{u} \underbrace{e^{4x}\,dx}_{dv} =$$

$du = 2x\,dx \quad v = \frac{1}{4}e^{4x}$

$du = \frac{1}{2} \quad v = \frac{1}{4}e^{4x}$

$$\frac{1}{4}x^2e^{4x} - \left[\frac{x}{8}e^{4x} - \int \frac{1}{8}e^{4x}\right] =$$

$$\frac{1}{4}x^2e^{4x} - \frac{x}{8}e^{4x} + \frac{1}{32}e^{4x}\Big|_0^1 =$$

$$\left(\frac{e^4}{4} - \frac{e^4}{8} + \frac{e^4}{32}\right) - \left(\frac{1}{32}\right) =$$

$$\frac{5e^4 - 1}{32}$$