

8.

$$\lim_{b \rightarrow \infty} \left[-e^{-b} + e^0 + e^{-b}(b+1) - e^0 \right] = 0$$

$$1 - 1 = 0$$

$$\langle l_0, l_2 \rangle = 0$$

$$\int_0^\infty l_0 l_2 e^{-x} dx = 0$$

$$\lim_{b \rightarrow \infty} \left[\int_0^b x^2 e^{-x} - 4x e^{-x} + 2e^{-x} dx \right] = 0$$