8/a

$\langle L_{n-1}, L_n \rangle \overset{!}{=} \emptyset, \quad i = 1, 2$

ASSUMING,

IF

$\langle L_{k-1}, L_k \rangle = \emptyset$

THEN

$\langle L_k, L_{k+1} \rangle$

⋮ ?

BRUTE FORCE STRATEGY:

$L_{n-1}, L_n = L_0, L_1$

$\langle L_0, L_1 \rangle = 0$

WAS SHOWN ON LAST 'PAGE'

L_1, L_2: $\langle L_1, L_2 \rangle = \emptyset$

$$= \int_0^\infty L_1 L_2 e^{-x} dx = \int_0^\infty (1-x)(x^2 - 4x + 2) e^{-x} dx$$

$$= \underbrace{\int_0^\infty [(x^2 - 4x + 2) - (x^3 + 4x^2 - 2x)] \cdots e^{-x} dx}$$

$$= \int_0^\infty [x^3 - 3x^2 - 2x + 2] e^{-x} dx$$

$$= \int_0^\infty x^3 e^{-x} - 3\int_0^\infty x^2 e^{-x} - 2\int_0^\infty x e^{-x} + \cdots$$

$$\cdots + 2\int_0^\infty e^{-x} dx$$

$$= (6) - (6) - 2 + 2$$

$$= \emptyset \therefore$$