

### Question #155

Answer: E

$$\begin{aligned} {}_{0.4}p_0 = .5 &= e^{-\int_0^{0.4} (F + e^{2x}) dx} \\ &= e^{-.4F - \left[ \frac{e^{2x}}{2} \right]_0^{0.4}} \\ &= e^{-.4F - \left( \frac{e^{0.8} - 1}{2} \right)} \\ .5 &= e^{-.4F - .6128} \end{aligned}$$

$$\Rightarrow \ln(.5) = -.4F - .6128$$

$$\Rightarrow -.6931 = -.4F - .6128$$

$$\Rightarrow F = 0.20$$