

68. X : dental expense

$$f(x) = \begin{cases} ce^{-0.004x} & x \geq 0 \\ 0 & \text{otherwise} \end{cases}$$

$$f(x) = \begin{cases} xe^{-7x} & \text{for } x \geq 0 \\ 0 & \text{otherwise} \end{cases} \Rightarrow c = 0.004$$

Y : claim benefits

$$Y = \begin{cases} x & \text{for } x < 250 \\ 250 & \text{for } x \geq 250 \end{cases}$$

median?

$$\int_0^m f(x) dx = 0.5$$

$$\int_0^m 0.004e^{-0.004x} dx = 0.5$$

$$-e^{-0.004x} \Big|_0^m = 0.5$$

$$1 - e^{-0.004m} = 0.5$$

$$m = 250 \ln 2 = 173.29$$

C