Problem 3.3

Q: $E(X) = 30$ (a) $P(X > 30) = ?$ (b) $P(X \geq 90 \mid x > 60) = ?$

Solution $E(X) = 30 = \dfrac{1}{\lambda}$ $\Rightarrow \lambda = \dfrac{1}{30}$

(a) $P(X > 30) = e^{-\lambda 30} = e^{-\frac{1}{30} \cdot 30} = e^{-1} = 0.3679$

(b) $P(X \geq 90 \mid x > 60) = P(X > 60 + 30 \mid x > 60) = P(X > 30) = 0.3679$