

## Question # 98

**Key: A**

Model Solution:

$$E(S) = E(N) E(X) = 50 \times 200 = 10,000$$

$$\begin{aligned} \text{Var}(S) &= E(N) \text{Var}(X) + E(X)^2 \text{Var}(N) \\ &= (50)(400) + (200^2)(100) \\ &= 4,020,000 \end{aligned}$$

$$\begin{aligned} \Pr(S < 8,000) &= \Pr\left(Z < \frac{8,000 - 10,000}{\sqrt{4,020,000}}\right) \\ &= \Pr(Z < -0.998) \cong 16\% \end{aligned}$$