

**Question # 91****Answer: A**

$$E(S) = E(N) \times E(X) = 110 \times 1,101 = 121,110$$

$$\begin{aligned} \text{Var}(S) &= E(N) \times \text{Var}(X) + E(X)^2 \times \text{Var}(N) \\ &= 110 \times 70^2 + 1101^2 \times 750 \\ &= 909,689,750 \end{aligned}$$

$$\text{Std Dev } (S) = 30,161$$

$$\begin{aligned} \Pr(S < 100,000) &= \Pr(Z < (100,000 - 121,110) / 30,161) \text{ where } Z \text{ has standard normal} \\ &\text{distribution} \\ &= \Pr(Z < -0.70) = 0.242 \end{aligned}$$