

Question #171

Key: C

$$E[S] = E[N]E[X] = 3 \times 10 = 30$$

$$\text{Var}(S) = E[N]\text{Var}(X) + E[X]^2 \text{Var}(N)$$

$$= 3 \times \frac{400}{12} + 100 \times 3.6 = 100 + 360 = 460$$

For 95th percentile, $E[S] + 1.645\sqrt{\text{Var}(S)} = 30 + \sqrt{460} \times 1.645 = 65.28$