

Question #213**Key: E**

<u>N</u>	<u>p_n</u>	<u>$n \times p_n$</u>	<u>$n^2 \times p_n$</u>
0	0.1	0	0
1	0.4	0.4	0.4
2	0.3	0.6	1.2
3	0.2	0.6	1.8
		<u>$E[N] = 1.6$</u>	<u>$E[N^2] = 3.4$</u>

$$\text{Var}(N) = 3.4 - 1.6^2 = 0.84$$

$$E[X] = \lambda = 3$$

$$\text{Var}(X) = \lambda = 3$$

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

$$= 1.6(3) + (3)^2(0.84)$$

$$= 12.36$$