135. The number of workplace injuries, $N$, occurring in a factory on any given day is Poisson distributed with mean $\lambda$. The parameter $\lambda$ is a random variable that is determined by the level of activity in the factory, and is uniformly distributed on the interval $[0, 3]$.

Calculate $\text{Var}(N)$.

(A) $\lambda$

(B) $2\lambda$

(C) 0.75

(D) 1.50

(E) 2.25

136. A fair die is rolled repeatedly. Let $X$ be the number of rolls needed to obtain a 5 and $Y$ the number of rolls needed to obtain a 6.

Calculate $E(X \mid Y = 2)$.

(A) 5.0

(B) 5.2

(C) 6.0

(D) 6.6

(E) 6.8