

131. Let N_1 and N_2 represent the numbers of claims submitted to a life insurance company in April and May, respectively. The joint probability function of N_1 and N_2 is

$$p(n_1, n_2) = \begin{cases} \frac{3}{4} \left(\frac{1}{4}\right)^{n_1-1} e^{-n_1} (1 - e^{-n_1})^{n_2-1}, & \text{for } n_1 = 1, 2, 3, \dots \text{ and } n_2 = 1, 2, 3, \dots \\ 0, & \text{otherwise.} \end{cases}$$

Calculate the expected number of claims that will be submitted to the company in May if exactly 2 claims were submitted in April.

- (A) $\frac{3}{16}(e^2 - 1)$
- (B) $\frac{3}{16}e^2$
- (C) $\frac{3e}{4 - e}$
- (D) $e^2 - 1$
- (E) e^2