

123. You are given the following information about N , the annual number of claims for a randomly selected insured:

$$P(N = 0) = \frac{1}{2}$$

$$P(N = 1) = \frac{1}{3}$$

$$P(N > 1) = \frac{1}{6}$$

Let S denote the total annual claim amount for an insured. When $N = 1$, S is exponentially distributed with mean 5. When $N > 1$, S is exponentially distributed with mean 8.

Determine $P(4 < S < 8)$.

(A) 0.04

(B) 0.08

(C) 0.12

(D) 0.24

(E) 0.25