

SOA Exam P 049 (Univariate Probability Dist.)

Given: 100/day up to 3 days
25/day thereafter

$$P(X=k) = \begin{cases} \frac{6-k}{15} & k=1, 2, 3, 4, 5 \\ 0 & \text{otherwise} \end{cases}$$

Find: Expected payments = ?

Solutions:

Let $f(x)$ = hospitalization payment by the insurance policy

$$f(x) = \begin{cases} 100k & k=1, 2, 3 \\ 300 + 25(k-3) & k=4, 5 \end{cases}$$

K	1	2	3	4	5
$P_r(X=k)$	$\frac{5}{15}$	$\frac{4}{15}$	$\frac{3}{15}$	$\frac{2}{15}$	$\frac{1}{15}$
Payment	100	200	300	325	350

Expected payments

$$= 100\left(\frac{5}{15}\right) + 200\left(\frac{4}{15}\right) + 300\left(\frac{3}{15}\right) + 325\left(\frac{2}{15}\right) + 350\left(\frac{1}{15}\right)$$

$$= 213.3333$$

ANS: D