

49. Solution: D

Define  $f(X)$  to be hospitalization payments made by the insurance policy. Then

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

and

$$\begin{aligned} E[f(X)] &= \sum_{k=1}^5 f(k) \Pr[X = k] \\ &= 100\left(\frac{5}{15}\right) + 200\left(\frac{4}{15}\right) + 300\left(\frac{3}{15}\right) + 325\left(\frac{2}{15}\right) + 350\left(\frac{1}{15}\right) \\ &= \frac{1}{3}[100 + 160 + 180 + 130 + 70] = \frac{640}{3} = 213.33 \end{aligned}$$