

Question #136

Key: B

$$\begin{aligned}\Pr(\textit{class1} \mid \textit{claim} = 250) &= \frac{\Pr(\textit{claim} = 250 \mid \textit{class1}) \Pr(\textit{class1})}{\Pr(\textit{claim} = 250 \mid \textit{class1}) \Pr(\textit{class1}) + \Pr(\textit{claim} = 250 \mid \textit{class2}) \Pr(\textit{class2})} \\ &= \frac{0.5(2/3)}{0.5(2/3) + 0.7(1/3)} = \frac{10}{17}.\end{aligned}$$

$$E(\textit{claim} \mid \textit{class1}) = 0.5(250) + 0.3(2,500) + 0.2(60,000) = 12,875.$$

$$E(\textit{claim} \mid \textit{class2}) = 0.7(250) + 0.2(2,500) + 0.1(60,000) = 6,675.$$

$$E(\textit{claim} \mid 250) = \frac{10}{17}(12,875) + \frac{7}{17}(6,675) = 10,322.$$