

16. Solution: D

Let N_1 and N_2 denote the number of claims during weeks one and two, respectively.

Then since N_1 and N_2 are independent,

$$\begin{aligned}\Pr[N_1 + N_2 = 7] &= \sum_{n=0}^7 \Pr[N_1 = n] \Pr[N_2 = 7 - n] \\ &= \sum_{n=0}^7 \left(\frac{1}{2^{n+1}} \right) \left(\frac{1}{2^{8-n}} \right) \\ &= \sum_{n=0}^7 \frac{1}{2^9} \\ &= \frac{8}{2^9} = \frac{1}{2^6} = \frac{1}{64}\end{aligned}$$