

Question #289

Key: D

600 can be obtained only 2 ways, from $500+100$ or from 6×100 .

Since $\lambda = 5$ and $p(100) = 0.8$, $p(500) = 0.16$,

$$p(6 \text{ claims for } 100) = \frac{e^{-5} 5^6}{6!} (0.8)^6 = 0.03833 \text{ or } 3.83\%$$

$$p(500+100) = \frac{e^{-5} 5^2}{2!} \left[(0.8)^1 (0.16)^1 (2) \right] = 0.02156 = 2.16\%$$

The factor of 2 inside the bracket is because you could get a 500 then 100 or you could get a 100 then 500.

$$\text{Total} = 3.83\% + 2.16\% = 5.99\%$$