

Exam P

≥ 4

$$\Pr(N=n) = \frac{1}{(n+1)(n+2)}, \quad n \geq 0$$

$\Pr(\text{at least 1 claim} \mid \text{at most 4 claims})$

$$= \Pr(N \geq 1 \mid N \leq 4)$$

$$= \frac{\Pr(1 \leq N \leq 4)}{\Pr(0 \leq N \leq 4)}$$

n	$\Pr(N=n)$	
0	$\frac{1}{(0+1)(0+2)}$	$= \frac{1}{2}$
1	$\frac{1}{(1+1)(1+2)}$	$= \frac{1}{6}$
2	$\frac{1}{(2+1)(2+2)}$	$= \frac{1}{12}$
3	$\frac{1}{(3+1)(3+2)}$	$= \frac{1}{20}$
4	$\frac{1}{(4+1)(4+2)}$	$= \frac{1}{30}$

$$\begin{aligned} \Pr(N \geq 1 \mid N \leq 4) &= \frac{(\frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30})}{(\frac{1}{2} + \frac{1}{6} + \frac{1}{12} + \frac{1}{20} + \frac{1}{30})} \\ &= \frac{2}{5} \quad \Rightarrow (B) \end{aligned}$$