SOA Exam P 030 (Univariate Probability Dist.)

N = # of claims

$N \sim \text{Poisson}(\lambda)$

$$P(N=k) = \frac{e^{-\lambda}\lambda^k}{k!}$$

$$P(N=2) = 3P(N=4)$$

$$\frac{e^{-\lambda}\lambda^2}{2!} = \frac{3e^{-\lambda}\lambda^4}{4!}$$

$$\frac{\lambda^2}{2} = \frac{3\lambda^4}{24}$$

$$\lambda^2 = 4$$

$$\lambda = 2$$

$N \sim \text{Poisson}(\lambda = 2)$

$\text{Var}(N) = \lambda$

$= 2$

ANS: D