

104. Glen is practicing his simulation skills.

He generates 1000 values of the random variable X as follows:

- (i) He generates the observed value λ from the gamma distribution with $\alpha = 2$ and $\theta = 1$ (hence with mean 2 and variance 2).
- (ii) He then generates x from the Poisson distribution with mean λ .
- (iii) He repeats the process 999 more times: first generating a value λ , then generating x from the Poisson distribution with mean λ .
- (iv) The repetitions are mutually independent.

Calculate the expected number of times that his simulated value of X is 3.

- (A) 75
- (B) 100
- (C) 125
- (D) 150
- (E) 175