

Question #26

Key: B

The likelihood function is $\frac{e^{-1/(2\theta)}}{2\theta} \cdot \frac{e^{-2/(2\theta)}}{2\theta} \cdot \frac{e^{-3/(2\theta)}}{2\theta} \cdot \frac{e^{-15/(3\theta)}}{3\theta} = \frac{e^{-8/\theta}}{24\theta^4}$. The loglikelihood function is $-\ln 24 - 4\ln(\theta) - 8/\theta$. Differentiating with respect to θ and setting the result equal to 0 yields $-\frac{4}{\theta} + \frac{8}{\theta^2} = 0$ which produces $\hat{\theta} = 2$.