

Question # 37

Answer: B

The likelihood is:

$$\begin{aligned} L &= \frac{\alpha 150^\alpha}{(150 + 225)^{\alpha+1}} \frac{\alpha 150^\alpha}{(150 + 525)^{\alpha+1}} \frac{\alpha 150^\alpha}{(150 + 950)^{\alpha+1}} \\ &= \frac{\alpha^3 150^{3\alpha}}{(375 \cdot 675 \cdot 1100)^{\alpha+1}}. \end{aligned}$$

The loglikelihood is:

$$l = 3 \ln \alpha + 3\alpha \ln 150 - (\alpha + 1) \ln(375 \cdot 675 \cdot 1100)$$

$$l' = \frac{3}{\alpha} + 3 \ln 150 - \ln(375 \cdot 675 \cdot 1100) = \frac{3}{\alpha} - 4.4128$$

$$\hat{\alpha} = 3 / 4.4128 = .6798.$$