

Question #155

Key: D

The equations to solve are $0.4 = e^{-(\theta/1.82)^\tau}$, $0.8 = e^{-(\theta/12.66)^\tau}$. Taking logs yields $0.91629 = (\theta/1.82)^\tau$, $0.22314 = (\theta/12.66)^\tau$. Taking the ratio of the first equation to the second equation gives $4.10635 = (12.66/1.82)^\tau = 6.95604^\tau$. Taking logs again, $1.41253 = 1.93961\tau$ and then $\tau = 0.72825$. Returning to the first (logged) equation, $0.91629 = (\theta/1.82)^\tau$, $0.88688 = \theta/1.82$, $\theta = 1.614$.