2. (6 marks) Suppose an experiment was conducted to estimate γ, the 70th percentile (0.70) of the response time distribution for a new system. The 70th percentile is the value γ such that $P\ (X\ \leq\ \gamma) = 0.70$.

   Ten users 'response times (in milliseconds) were recorded: 20, 40, 10, 30, 25, 15, 05, 35, 50, 28.

   Assuming that the response times follow a Rayleigh distribution with scale parameter θ, **find the maximum likelihood estimate of $\boldsymbol{\gamma}$**, where γ satisfies:

$$0.70 = \int_0^{\gamma} \frac{x}{\theta^2} e^{-x^2/(2\theta^2)} dx$$

   You do not need to show the second derivative condition for this exercise.