# EXAM C QUESTIONS OF THE WEEK

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## Week of January 22/07

$X$ has an exponential distribution with mean $\theta$. $Y = e^X$ . Find the distribution of $Y$.
A) Weibull      B) Inverse Weibull      C) Exponential
D) Inverse Exponential      E) Single Parameter Pareto

**The solution can be found below.**

## Week of January 22/07 - Solution

$f_Y(y) = \frac{1}{y} \cdot f_X(\ln y) = \frac{1}{y} \cdot \frac{1}{\theta} \cdot e^{-(\ln y)/\theta} = \frac{1}{y} \cdot \frac{1}{\theta} \cdot \frac{1}{y^{1/\theta}} = \frac{\alpha}{y^{\alpha+1}}$ for $y = e^x > 1$, where $\alpha = \frac{1}{\theta}$. $Y$ has the pdf of a single parameter Pareto distribution with $\theta = 1$.