Lecture 23: Chebychev theorem

Assume the time for an earthquake to occur is distributed with the **exponential distribution**

$$f(x) = \lambda e^{-\lambda x} .$$

We know the mean and standard deviation are both $1/\lambda$.

Let X be a random variable which tells the time for the next earth quake.

Assume $\lambda = 1/10$ years. We can estimate the probability that the next earth quake happens in 30 years or more.

$$P[|X - 10| \geq 20] \leq \text{Var}[X]/20^2 = 100/400 = 1/4 .$$

Now its your turn:

1   Assume $\lambda = 1/30$. Estimate the probability that the next earth quake hits in 100 years or more.