In a particle detection experiment, the fraction of particles detected is:

A. underestimated
B. overestimated
C. the same as

if we use the time of flight in the detector frame.

In our particle detection experiment, the fraction of particles detected at a given location in detector frame will be:

$$e^{-\lambda \Delta t}$$

What is Δt in this case?

A. The time to traverse from the source to the detector
B. The time observed on the clock on the wall
C. The time observed by the particles in their frame
D. None of these
E. More than one of these

Is the time interval (Δt) between two events Lorentz invariant?

A. Yes
B. No

Is the proper time interval ($\Delta \tau = \dfrac{\Delta t}{\gamma}$) between two events Lorentz invariant?

A. Yes
B. No

Consider a S' frame moving with a speed v in 1D with respect to a stationary frame S. Using your everyday intuition, write down the relationship between a position measurement x and x'.

Be ready to explain why this makes sense to you.

The Galilean transformation between S' and S is:

$$x = x' + vt$$

The Lorentz transformation will introduce a γ, where do you think it goes? And why?