1-2 Soln

We can do this two ways: time dilation or length contraction. Let do be the distance 25 m in the lab, and to be the proper lifetime of 2×10-8 seconds.

Time dilation: Let tL be the lifetime of the moving pions as seen from the laboratory point of view. Then,

Length contraction: Let dP be the length of the room as seen by the pion.