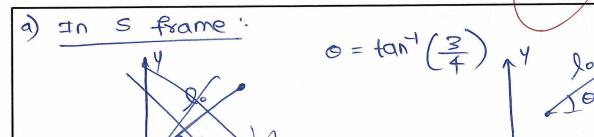
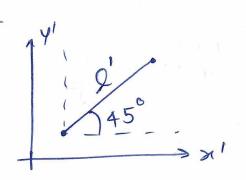
190123046 Roll No Name Pradnesh P. Kalkas

- 1. A rod of proper length l_0 sits at rest in S frame, lying in the x-y plane at an angle of $\theta = tan^{-1}(3/4)$ with the x-axis. A frame S' moves with velocity $\vec{v} = v\hat{x}$ with respect to S. In S', the rod is angled at 45° with respect to the x' axis.
 - (a) What is v?
 - (b) What is the length l' of the rod as measured in S' frame?



In s' frame



velocity of s' frame wirt. $S = V \hat{x}$ i. Only x-component of the length of the rod undergoes length contraction, and the length of y component remains unchanged the length of y component remains

losino = l'sin 45°/ Now, true length of the x-romponent of will be seen in S.

$$\frac{\log \cos 0}{3} = \frac{0}{\cos 45^{\circ}} - \frac{2}{2}$$

$$\frac{\log \cos 0}{3} = \frac{0}{2} \cos 45^{\circ} - \frac{2}{2}$$

$$\frac{\log \cos 0}{3} = \frac{1}{2} \cos 45^{\circ} - \frac{2}{2}$$

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$$\frac{\log \cos 0}{3} = \frac{1}{2} \cos 45^{\circ} - \frac{1}{2} \cos 45^{\circ}$$