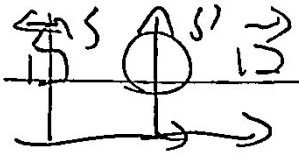
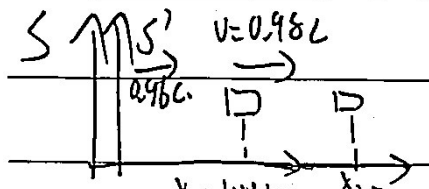
207.5-9



∴ $u = 0.8c$, $V = \frac{0.8c + 0.8c}{1 + \frac{(0.8c)^2}{c^2}} = 0.976c$

$V_x' = 0.8c$

207.5-10



$u = 0.96c$, $\gamma = \frac{1}{\sqrt{1 - \frac{u^2}{c^2}}}$

$x_2 = x_1 + 10V$.

$x_1' = \gamma(x_1 - ut_1) = 357m$

$t_1' = \gamma(t_1 - \frac{u}{c^2}x_1) = -1.14\times10^{-6}s$

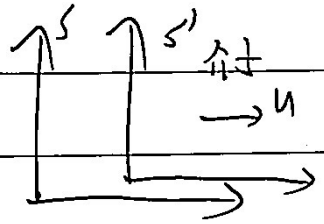
$V' = \frac{V_x \pm u}{1 \mp \frac{uV}{c^2}}$

$x_2' = \gamma(x_2 - ut_2) = 2.14\times10^8 m$

$t_2' = \gamma(t_2 - \frac{u}{c^2}x_2) = 2.1s$

$= 1.0\times10^8 m/s$

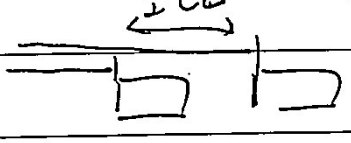
208.5-11



$u = 0.90c$ $V' = 0.85c$

$V_{max} = \frac{0.85c + 0.90c}{1 + \frac{1}{c^2}uV'} = 0.992c$

$V_{min} = \frac{0.90c - 0.85c}{1 - \frac{1}{c^2}uV'} = 0.213c$



208.5-12

(1) 以地面为参考, $\frac{1}{2}\Delta t c = L\sqrt{1 - \frac{u^2}{c^2}} + \frac{1}{2}\Delta t u \Rightarrow u = 0.90c$

(2) $\Delta t' = \frac{L}{c} = 2\times10^{-6}s$