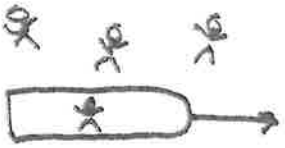
Ex 30.4 More astronauts



$v = 0.8c$

$$\gamma = \frac{1}{\sqrt{1-(0.8)^2}} = \frac{1}{\sqrt{.36}} = \frac{5}{3}$$

a) $\Delta t = \frac{5}{3}\Delta t_0$

$\boxed{\Delta t = 1\ 2/3 \text{ sec}}$ The astronaut aboard the ship measures the so-called "proper time", Δt_0, between kicks. This is no more correct than Δt.

b) $L = L_0/5/3$

$= 80m \times \frac{3}{5} =$

$\boxed{L = 48m}$ The astronaut aboard the ship measures the "proper length" of the ship, L_0, but this is no more correct than L.