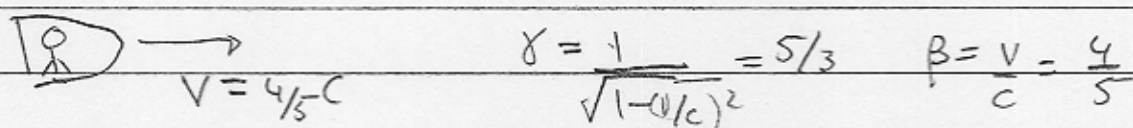
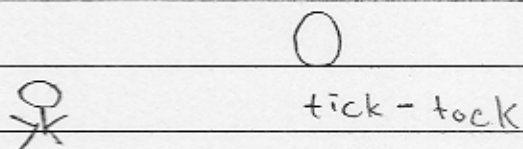


## Last time

- Consider a clock with the time between tick and tock = 1s



- The coordinates of tock as measured by earth frame

$$(ct, x) = (1 \text{ cs}, 0) \quad 1 \text{ cs} = 3 \times 10^8 \frac{\text{m}}{\text{s}} \cdot 1 \text{ s}$$

- The space time coordinates of tock as measured by the spaceship frame are

$$\begin{aligned} ct' &= \gamma \cdot ct - \gamma\beta \cdot x \\ x' &= \gamma\beta \cdot ct + \gamma \cdot x \end{aligned}$$

Where (-) is for a right moving space ship and (+) is for a left moving space ship

$$ct' = \left(\frac{5}{3}\right) (1 \text{ cs}) - \gamma\beta \cdot (0) = \frac{5}{3} \text{ cs}$$

$$x' = -\left(\frac{5}{3}\right) \cdot \frac{4}{5} (1 \text{ cs}) + \gamma (0) = -\frac{4}{3} \text{ cs}$$