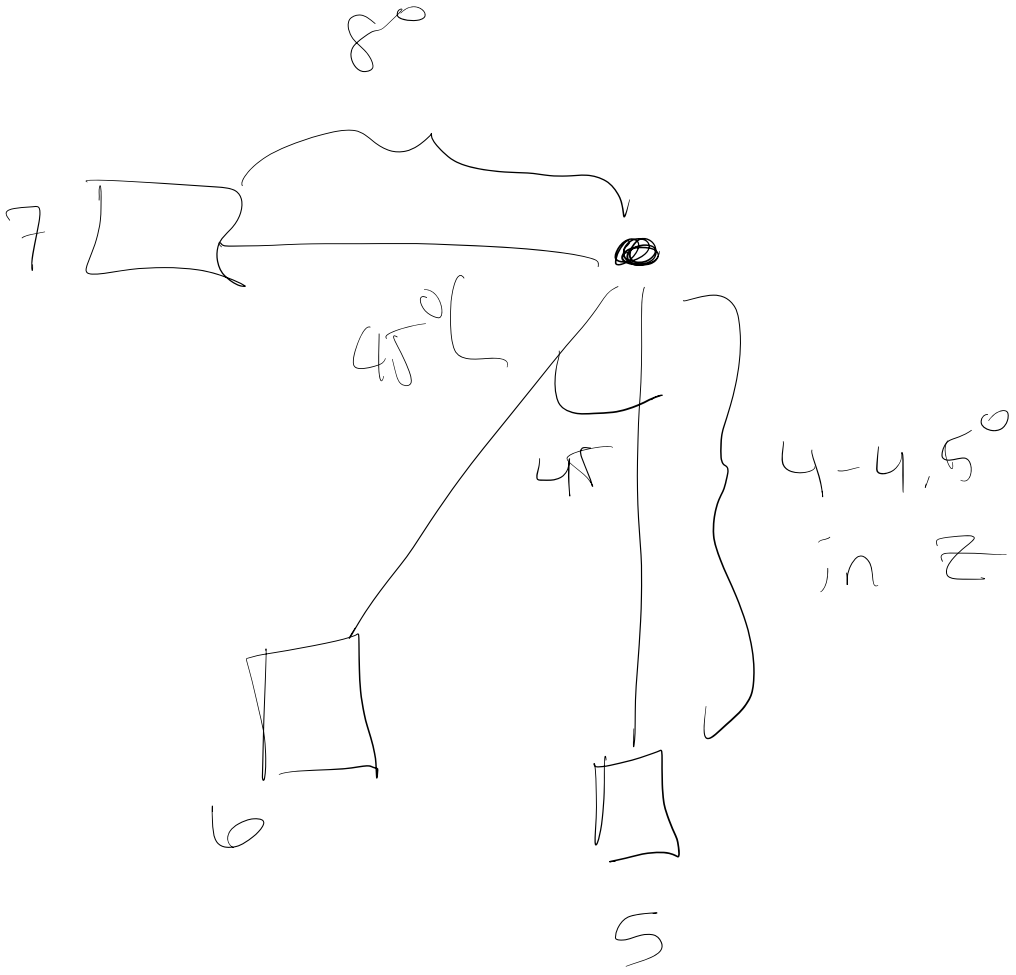

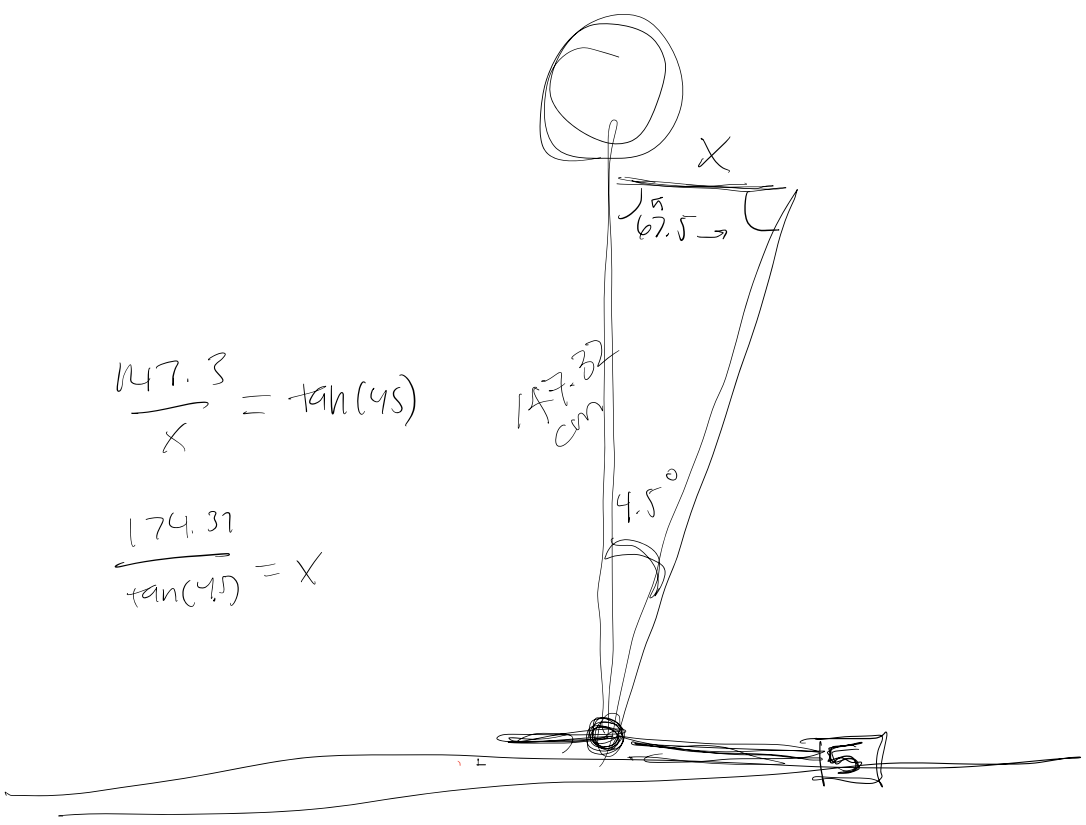

$$\frac{147.3}{x} = \tan(45)$$

$$\frac{174.31}{\tan(4.5)} = x$$

$\theta_2 = 67.5$

$\theta_1 = 2.25$

$$\sin(2.25) = \frac{x}{147.32}$$

$x = 147.32 \cdot \sin(2.25) = 5.78$ cm $\times 2 = 11.57$ cm for 4'10 person

distance = height $\times \sin$ (sway angle)