A pole stands initially at equilibrium. After a while, two men begin to pull on ropes attached to the pole as seen above. If forces of F and P are exerted on the ropes, find the magnitudes of the moments of each force about A and their rotation direction. Will the pole rotate clockwise, counterclockwise, or remain upright (Assuming that the pole can pivot about A)?

Find the moments about A.

$$|(M_F)_A| = h_1 \frac{4}{5} F$$

→ Clockwise

$$|(M_P)_A| = (h_1 + h_2)P \cos(\theta)$$

→ Counterclockwise

Will the pole rotate clockwise, counterclockwise, or remain upright?

If $|(M_F)_A| > |(M_P)_A|$, clockwise

If $|(M_F)_A| < |(M_P)_A|$, counterclockwise

If $\left|(M_F)_A\right| = \left|(M_P)_A\right|$, no rotation