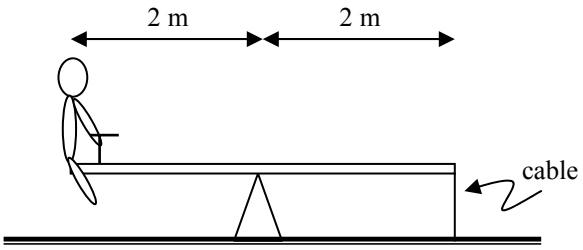
W4.01

STATIC EQUILIBRIUM – "See-Saws"-KEY

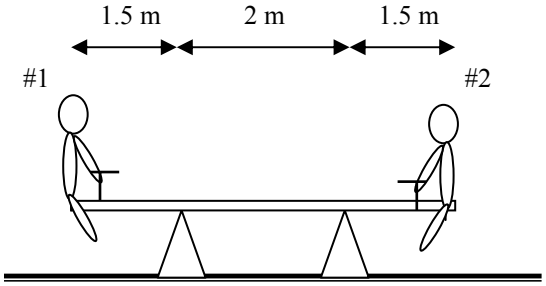
$\Sigma F = 0$ & $\Sigma \tau = 0$

[1] Find the tension in the cable and the force of the support.
Note: The board is 500 N & the person is 1,500 N



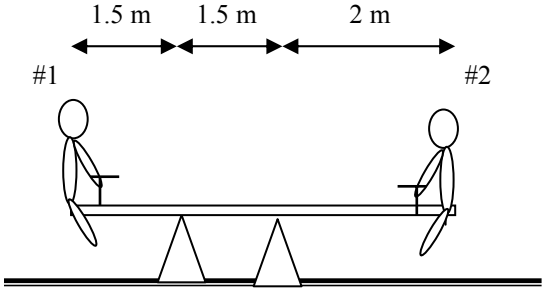
Tension=1,500 N
Force of the support=3,500 N up

[2] Find the force provided by each support.
Note: The board is 600 N, person #1 is 1,500 N & person #2 is 2,000 N



Force of left support=1,425 N up
Force of right support=2,675 N up

[3] Find the force provided by each support.
Note: The board is 600 N, person #1 is 1,500 N & person #2 is 1,000 N

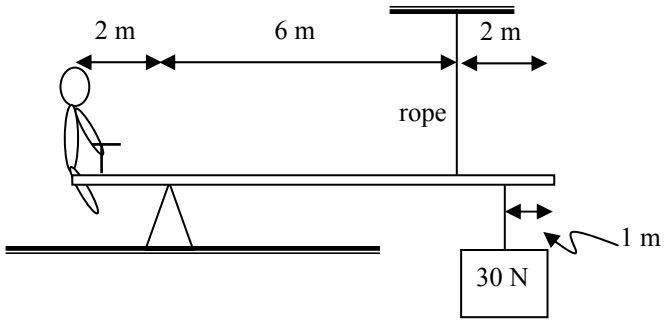


Force of left support=1,866 2/3 N up
Force of right support=1,233 1/3 N up

STATIC EQUILIBRIUM – "See-Saws"-KEY

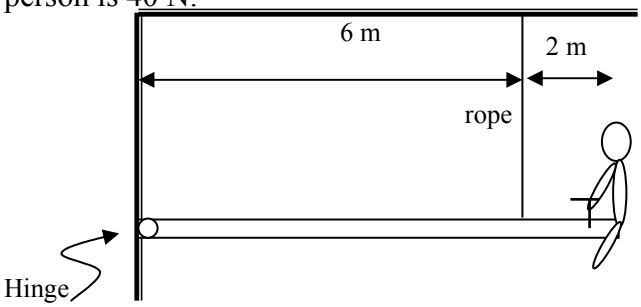
$\Sigma F = 0$ & $\Sigma \tau = 0$

[4] Find the weight of the board & the weight of the person.
Note: The support pushes up with 20 N & the tension is rope is 40 N.



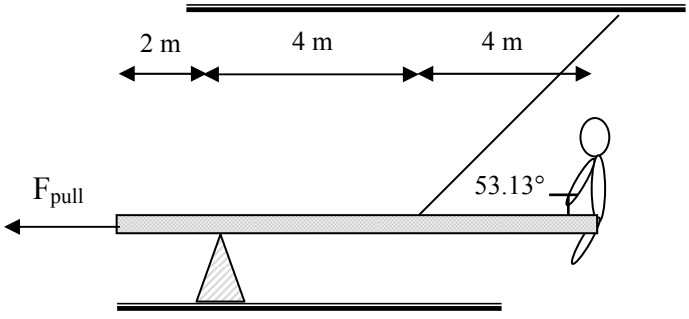
weight of board=18 N
weight of person=12 N

[5] Find the tension in the rope & the force the hinge provides in both the horizontal and vertical directions. Note: The weight of the board is 60 N & the weight of the person is 40 N.



horizontal force of hinge=0 N
vertical force of hinge=6 2/3 N up
tension=93 1/3 N

[6] Find the tension in the rope, the horizontal "pull" force & the force the support.
Note: The weight of the board is 400 N & the weight of the person is 100 N.



tension=625 N
force$_{pull}$=375 N left
force of support=0 N