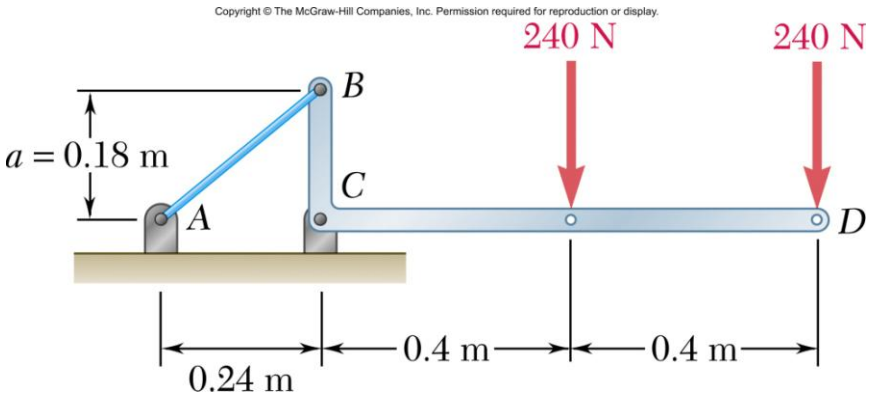
ENGR 201
Summer 2012
HW #7

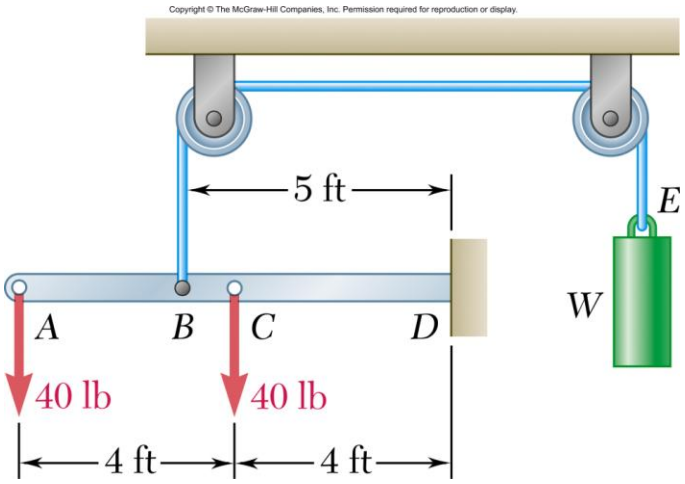
Due: ***05/29 at 5:00 pm (CST) for on-campus students***
05/29 at 11:59 pm (CST) for DEDP (on-line) students

Problem 4.15



The bracket BCD is hinged at C and attached to a control cable at B. For the loading shown, determine (a) the tension in the cable, (b) the reaction at C.

Problem 4.43



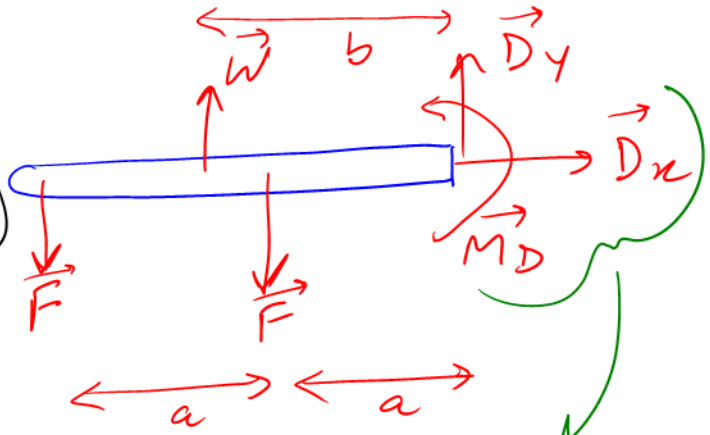
Beam AD carries the two 40 lb loads shown. The beam is held by a fixed support at D and by the cable BE that is attached to the counterweight W. Determine the reaction at D when (a) W = 100 lb, (b) W = 90 lb.

In this case, if we take

$+\circlearrowleft \Sigma M_D = 0$: (sum of moments about D equal to zero)

$M_D - W(b) + F(2a) + F(a) = 0$

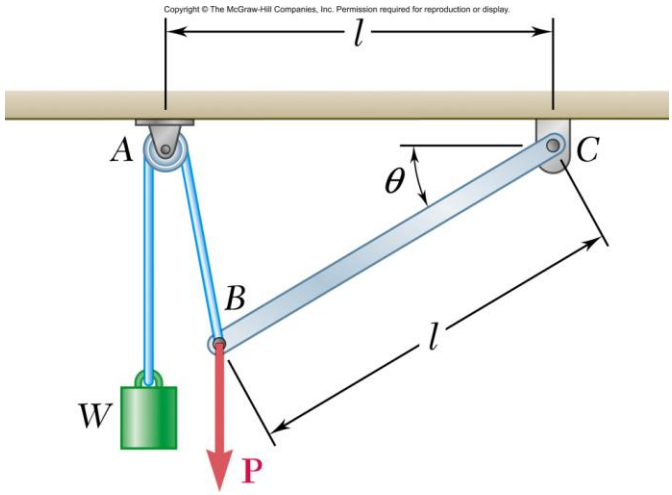
M_D ↓ (+ive since it is ccw)



an example of the cantilever support that has a force as well as a moment

To solve for reaction at D, we will solve for D_x, D_y and M_D.

Problem 4.51



A vertical load P is applied at end B of rod BC. (a) Neglecting the weight of the rod, express the angle θ corresponding to the equilibrium position in terms of l, P, and W. (b) Determine the value of θ if P = 2W.