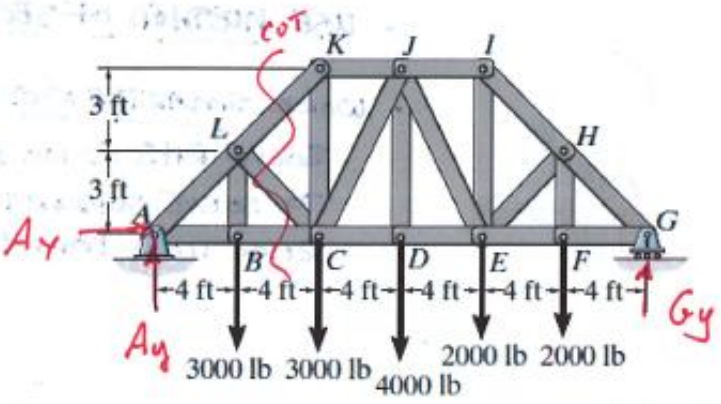
Worksheet 9

Problem 4 - Trusses

Determine the force in members LK, LC and BC.



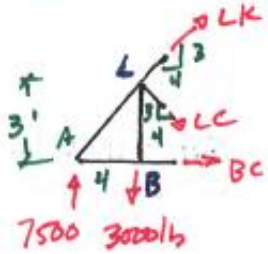
- METHOD OF SECTIONS!
- NEED TO SOLVE SUPPORT REACTIONS @ A FIRST!

FULL FBD TO SOLVE REACTIONS @ A

$\circlearrowleft \Sigma M_G = 0 \qquad -A_y(24) + 3000(20) + 3000(16) + 4000(12) + 2000(8) + 2000(4) = 0$

$A_y = 7500\,lb \uparrow$

METHOD OF SECTIONS



$\circlearrowleft \Sigma M_L = 0 \qquad -7500(4) + BC(3) = 0$

$BC = 10{,}000\,lb$

$BC = 10.0\,kip\,(T)$

$\rightarrow \Sigma F_x = 0 \qquad \overset{10{,}000}{BC} + \frac{4}{5}LC + \frac{4}{5}LK = 0$

$LC = -2500\,lb$

$LC = 2.50\,kip\,(C)$

$\uparrow \Sigma F_y = 0 \qquad 7500 - 3000 - \frac{3}{5}LC + \frac{3}{5}LK = 0$

$LK = -10{,}000\,lb$

$LK = 10.0\,kip\,(C)$

- SOLVE USING SIMULTANEOUS EQNS OR SUBSTITUTION