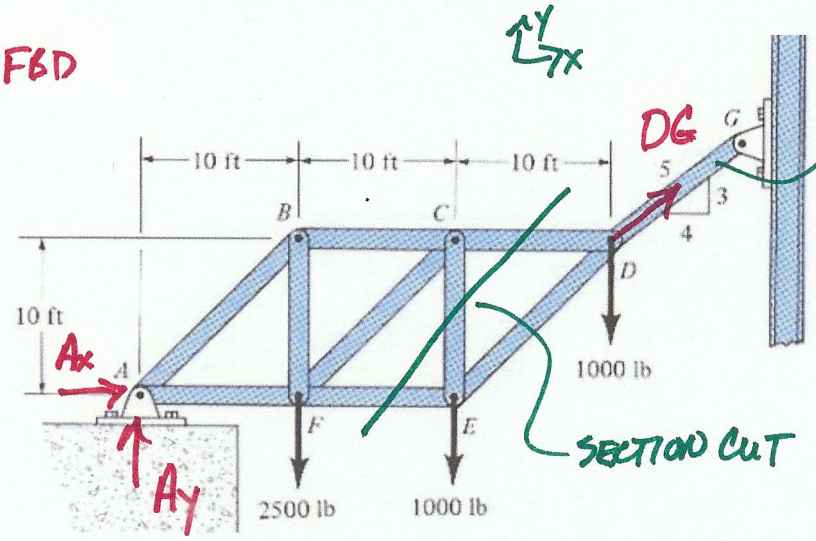
Worksheet 10

Problem 4 - Method of Sections

Determine the force in members CE, FE and CD.

FBD



DG

2 FORCE MEMBER

NON CONCURRENT
3 EQNS
3 UNKS

SECTION CUT

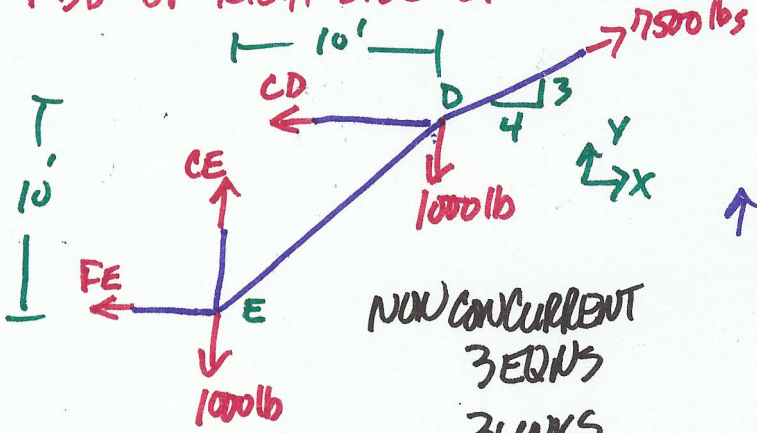
EXTERNAL

$\circlearrowleft \Sigma M_A = 0$

$2500(10) + 1000(20) + 1000(30) - \frac{3}{5}DG(30) + \frac{4}{5}DG(10) = 0$

$DG = 7500$ lbs $\nearrow$ (3, 4)

FBD OF RIGHT SIDE OF CUT



NON CONCURRENT
3 EQNS
3 UNKS

$\circlearrowleft \Sigma M_D = 0$

$-1000(10) + 10CE + 10FE = 0$

$FE = 3500$ lb (T)

$\uparrow \Sigma F_y = 0$

$\frac{3}{5}(7500) - 1000 - 1000 + CE = 0$

$CE = -2500 + 2500$ lb (C)

$\rightarrow \Sigma F_x = 0$

$-3500 - CD + \frac{4}{5}(7500) = 0$

$CD = 2500$ lb (T)