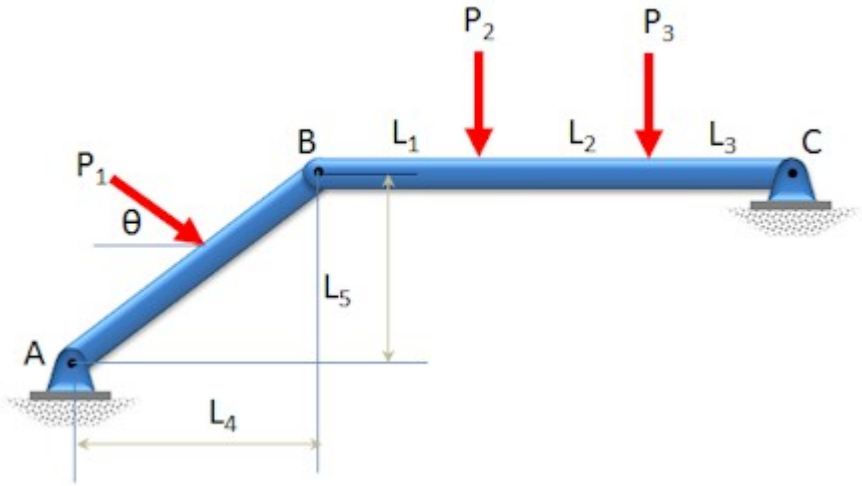
Online Homework System

Assignment Worksheet
6/16/22 - 3:58:55 PM MDT

Name: _____ **Class:**
Class #: _____ **Section #:** _____
Instructor: Parker Schnepf **Assignment:** 7.4 Homework Exercises

Question 1: (10 points)



Find the horizontal and vertical components of the reaction at support **C** *(+x to the right, +y upward)*, given:

$\mathbf{P_1}$ = 300 *N* (***P_1*** *acts midway between* ***A*** *and* ***B***), $\mathbf{P_2}$ = 420 *N*, $\mathbf{P_3}$ = 240 *N*, $\mathbf{L_1}$ = 3 *m*, $\mathbf{L_2}$ = 5 *m*, $\mathbf{L_3}$ = 5 *m*, $\mathbf{L_4}$ = 4 *m*, $\mathbf{L_5}$ = 5 *m*, $\boldsymbol{\theta}$ = 25 °.

(ans: $\mathbf{C_X}$ *= -519 N,* $\boldsymbol{C_Y}$ *= 245 N)*

Select problem completion status from drop-down list:

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Question 2: (10 points)

The backhoe and its contents have a combined weight of 300 *kN* and center of gravity at point **G**. Find the resulting force in cylinder **AE** and linkages **AB** and **AD**, indicating whether they are in Tension or Compression. Given:

$\mathbf{L_1}$ = 300 *mm*, $\mathbf{L_2}$ = 75 *mm*, $\mathbf{L_3}$ = 450 *mm*, $\boldsymbol{\theta}$ = 40 °, $\boldsymbol{\Phi}$ = 60 °.

(ans: $\boldsymbol{F_{AE}}$ = 846 kN C, $\boldsymbol{F_{AB}}$ = 962 kN T, $\boldsymbol{F_{AD}}$ = 628 kN C)

Select problem completion status from drop-down list:

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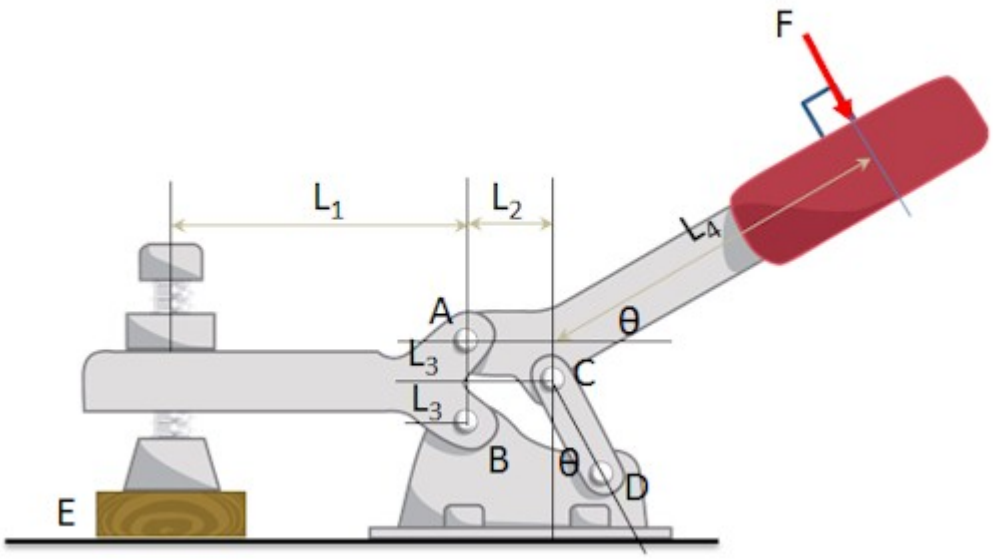
Question 3: (10 points)



Find the force **F** that must be applied at the handle to produce a clamping force of 75 *lbs* at **E**, given:

$\mathbf{L_1}$ = 8 *in*, $\mathbf{L_2}$ = 2.25 *in*, $\mathbf{L_3}$ = 1 *in*, $\mathbf{L_4}$ = 10 *in*, $\boldsymbol{\theta}$ = 30 °

*(ans: **F** = 82.8 lbs)*

Select problem completion status from drop-down list:

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