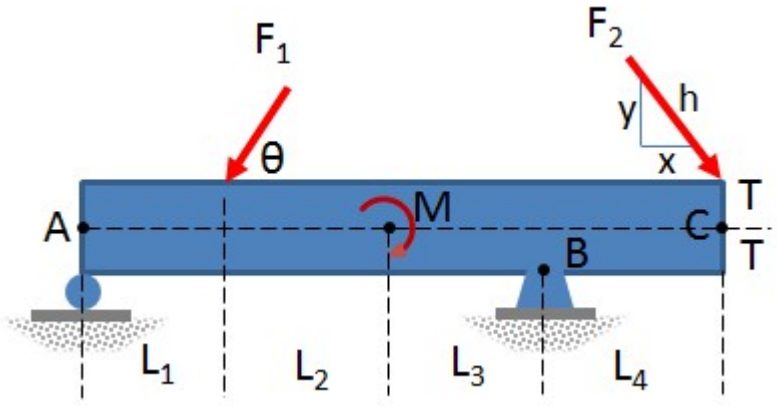
Online Homework System

Assignment Worksheet
6/16/22 - 4:02:40 PM MDT

Name: _____ **Class:**
Class #: _____ **Section #:** _____
Instructor: Parker Schnepf **Assignment:** 5.2 Homework Exercises

Question 1: (10 points)



Replace the force and couple system acting on the beam with an equivalent resultant force and specify its location measured from point **A**, along **AC**, given:

M = 25 *lb·ft*, **F_1** = 35 *lbs*, **F_2** = 40 *lbs*, **L_1** = 3 *ft*, **L_2** = 3 *ft*, **L_3** = 1 *ft*, **L_4** = 3 *ft*, **T** = 0.6 *ft*, **θ** = 40°, **x**,**y**,**h** = 3,4,5, respectively

*(ans: **F_R** = 54.6 lbs, **Φ** = -93°, **d** = 7.54 ft)*

Select problem completion status from drop-down list:

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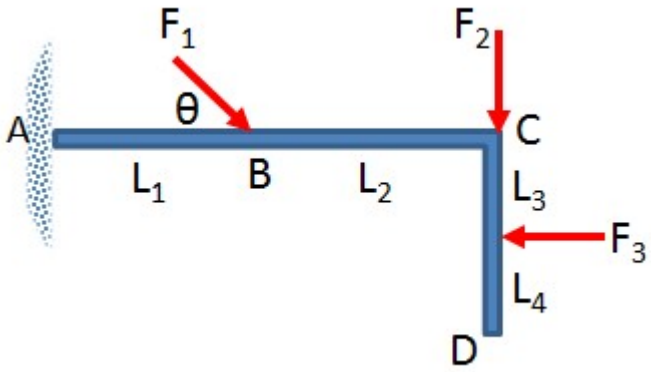
Question 2: (10 points)



Replace the force system acting on the structure with an equivalent resultant force and specify its location location measured from point **A**, along **AC**, given:

$\mathbf{F_1}$ = 100 *N*, $\mathbf{F_2}$ = 50 *N*, $\mathbf{F_3}$ = 65 *N*, $\mathbf{L_1}$ = 3 *m*, $\mathbf{L_2}$ = 4 *m*, $\mathbf{L_3}$ = 2 *m*, $\mathbf{L_4}$ = 1 *m*, $\boldsymbol{\theta}$ = 30°

(ans: $\boldsymbol{F_R}$ *= 102 N,* $\boldsymbol{\Phi}$ *= -77.8°,* $\boldsymbol{d}$ *= 6.3 m)*

Select problem completion status from drop-down list:

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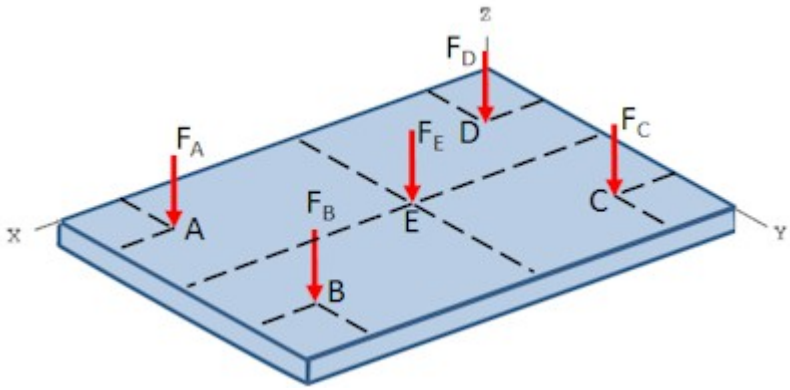
Question 3: (10 points)



Five parallel forces act on the plate as shown. Overall dimensions of the plate are 8 *ft* (*x*-direction) by 6 *ft* (*y*-direction). Forces $\mathbf{F_A}$, $\mathbf{F_B}$, $\mathbf{F_C}$, and $\mathbf{F_D}$, are located in from the corners 1 *ft* in the *x*- and *y*-directions. Force $\mathbf{F_E}$ is located at the centroid of the plate. Find the equivalent resultant force and specify its **x** and **y** location from the origin, given:

$\mathbf{F_A}$ = 50 *lbs*, $\mathbf{F_B}$ = 60 *lbs*, $\mathbf{F_C}$ = 70 *lbs*, $\mathbf{F_D}$ = 80 *lbs*, $\mathbf{F_E}$ = 90 *lbs*

(ans: $\boldsymbol{F_R}$ *= 350 lbs,* $\boldsymbol{x}$ *= 3.66 ft,* $\boldsymbol{y}$ *= 3 ft)*

Select problem completion status from drop-down list:

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