Online Homework System

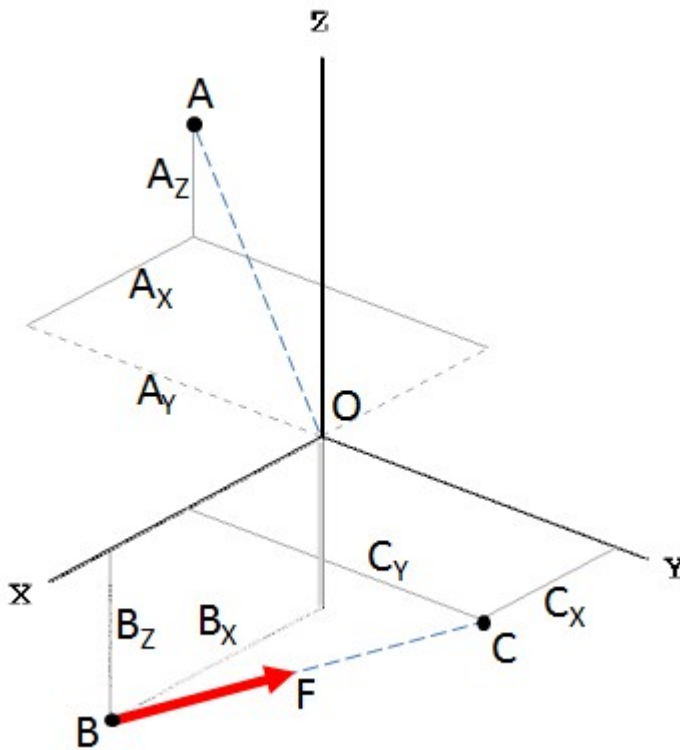**Name:** _____

Class #: _____

Instructor: Parker Schnepf

Class:

Section #: _____

Assignment: 4.3 Homework Exercises

Question 1: (10 points)

Find the moment of force **F** about axis **OA** in Cartesian vector notation, given:

F = 275 *N*,   **A$_X$** = 4 *m*,   **A$_Y$** = 6 *m*,   **A$_Z$** = 6 *m*,   **B$_X$** = 4 *m*,   **B$_Z$** = 4 *m*,   **C$_X$** = 10 *m*,   **C$_Y$** = 4 *m*

  (ans: M$_{OA}$ = 967 N·m,   M̄$_{OA}$ = <-412, -618, 618> N·m)

Select problem completion status from drop-down list:

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Question 2: (10 points)
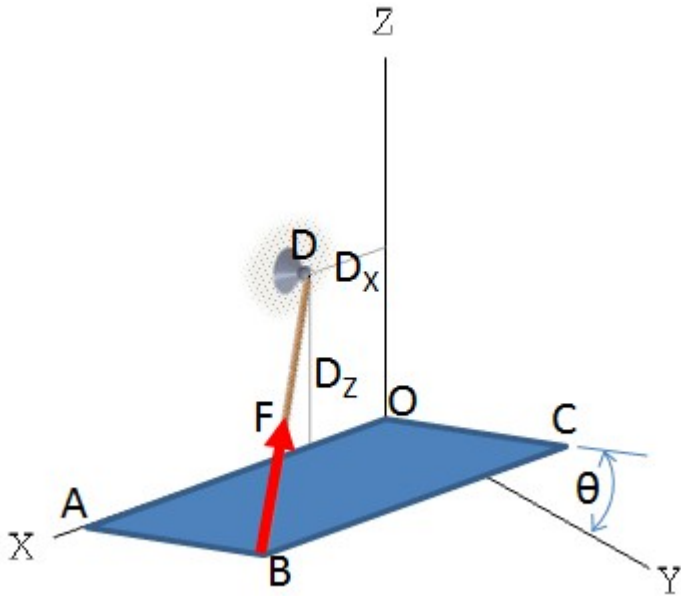
Door **OABC** is hinged along **OA**. Find the magnitude of the moment produced by force **F** along axis **OA**, given:
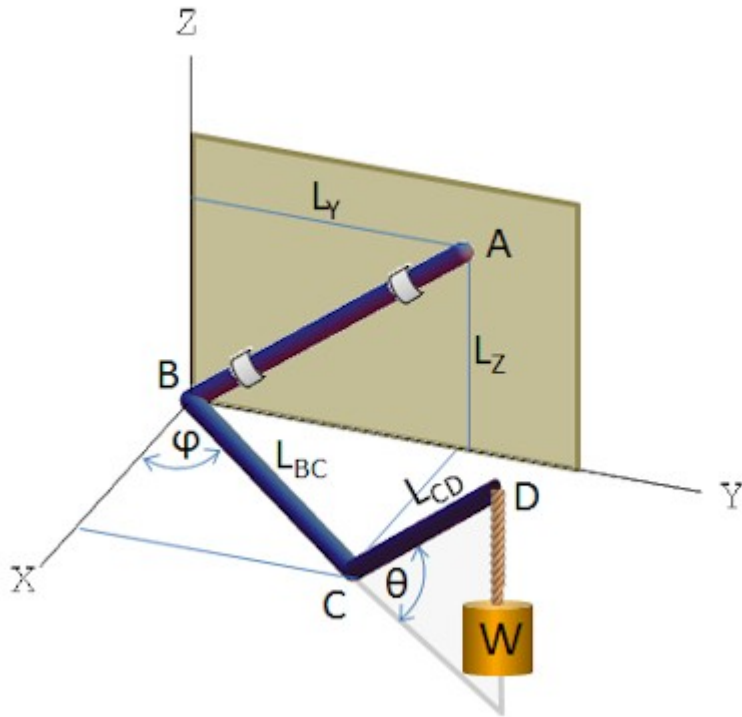
 F = 100 *lbs*, D_X = 2 *ft*, D_Z = 5 *ft*,   θ = 25°

 The door dimensions are 3 *ft* x 7 *ft*

  (ans: M_{OA} = 200 lb·ft)

Select problem completion status from drop-down list:

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Question 3: (10 points)

The pipe assembly **ABCD** is secured to the wall with two brackets. The frictional force of both brackets can resist a maximum moment of 250 $N{\cdot}m$. Find the maximum weight, **W**, that can be supported before the pipe starts to rotate about axis **AB**, given:

L_Y = 2 m, L_Z = 1.5 m, L_{BC} = 3 m, L_{CD} = 2.5 m,   θ = 35 °,   Φ = 50 °

*(ans: **W** = 96.3 N)*

Select problem completion status from drop-down list:

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