PASS MOCK EXAM – *FOR PRACTICE ONLY*

Course: ECOR 1101 BCDEF **Facilitator:** Hailey Quiquero

Dates and locations of mock exam take-up:

Wed. Apr. 9 @ 6:00-9:00 PM
– SC 103

IMPORTANT:

It is **most beneficial** to you to write this mock midterm **UNDER EXAM CONDITIONS**. This means:

- Complete the midterm in **3** hours.
- Work on your own.
- Keep your notes and textbook closed.
- Attempt every question.

After the time limit, go back over your work with a different colour or on a separate piece of paper and try to do the questions you are unsure of. Record your ideas in the margins to remind yourself of what you were thinking when you take it up at PASS.

The purpose of this mock exam is to give you practice answering questions in a timed setting and to help you to gauge which aspects of the course content you know well and which are in need of further development and review. Use this mock exam as a ***learning tool*** in preparing for the actual exam.

Please note:

- Come to the PASS session with your mock exam complete. There, you can work with other students to review your work.
- Often, there is not enough time to review the entire exam in the PASS session. Decide which questions you most want to review – the Facilitator may ask students to vote on which questions they want to discuss.
- Facilitators do not bring copies of the mock exam to the session. Please print out and complete the exam before you attend.
- **Facilitators do not produce or distribute an answer key for mock exams.** Facilitators help students to work together to compare and assess the answers they have. If you are not able to attend the PASS session, you can work alone or with others in the class.

Good Luck writing the Mock Midterm!!

PEER ASSISTED STUDY SESSIONS

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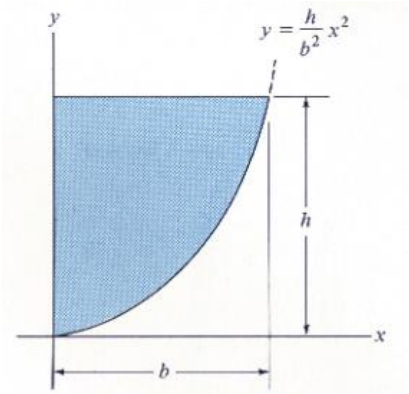
Course: ECOR 1101 BCDEF
Date: April 9, 2014

1) Determine the centroid $\bar{x}$ and $\bar{y}$ of the area.



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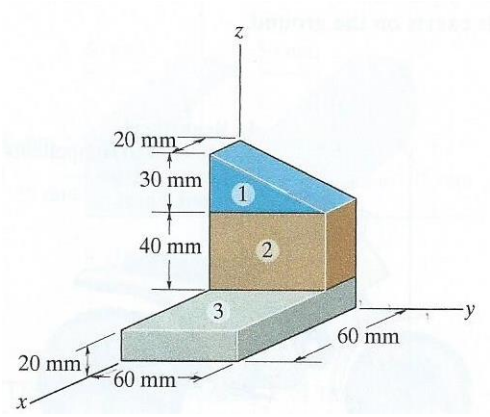
2) Find the center of mass of the block given the following data:



Section	Density (Mg/m^3)
1	2.70
2	5.70
3	7.80

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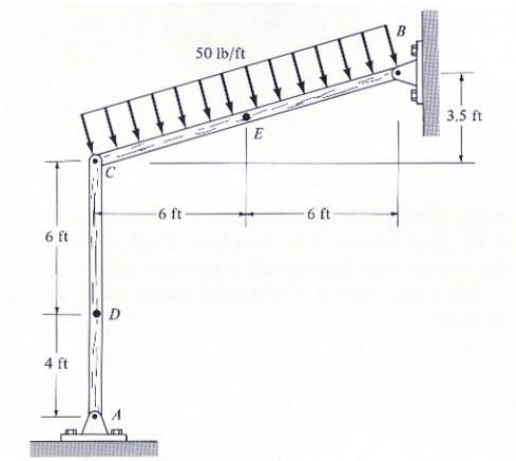
3) Determine the internal forces acting at points D and E in the two-member frame.



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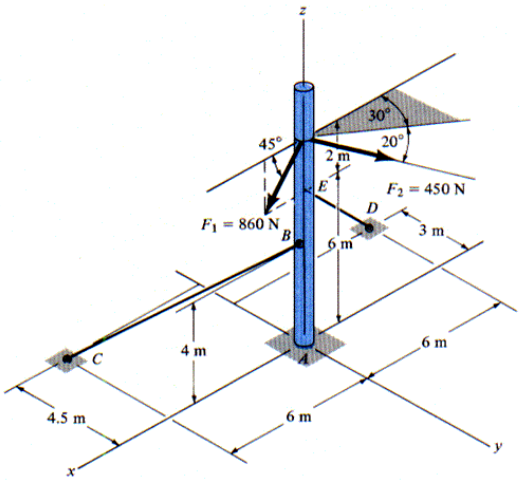
4) Determine the reaction forces at the ball-and-socket joint at A, and compute the tension in each of the guy wires, *BC* and *ED*.



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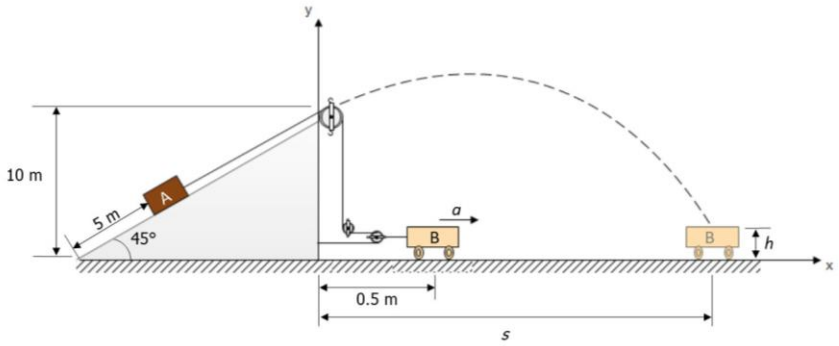
5) Car B drives to the right with an acceleration of $a = (-4.5t^2 + 10)$ m/s^2, beginning in the position shown when $t = 0$.

a) If crate A begins in the position shown, what is the speed of the crate when it leaves the ramp?
b) Assuming the cord releases the crate as it leaves the ramp, at what time, t, and position, s, does the crate land in the car?
c) What is the height, h, of the car?



There is a 4th degree polynomial in this question… use an online calculator to solve for it.

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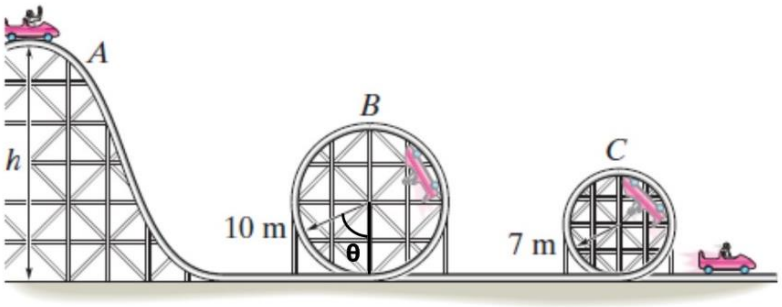
6) If the car leaves from *A* with a speed of v_A = 3 m/s, determine the height of the hill, *h*, so that the car can travel around both loops without leaving the track. The mass of the car and passenger is 800 kg. Ignore friction and the size of the car. What is the normal reaction on the car at *B* and *C*?



When the car is in loop *B* and $\theta = 60°$, calculate the magnitude of its acceleration.