PASS MOCK EXAM

– FOR PRACTICE ONLY –

Course: ECOR 1101 A **Facilitator:** John Hammond

Dates and locations of mock exam take-up:

Monday, December 14th from 1:00 PM – 4:00 PM in Mackenzie Building room 3380

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

- Complete the mock exam 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 Exam!!

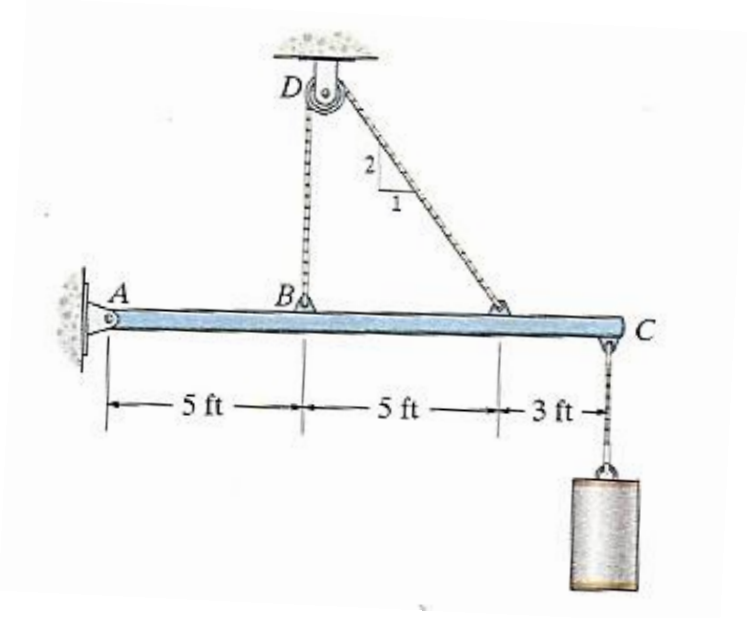
PEER ASSISTED STUDY SESSIONS

Facil: John Hammond Course: ECOR 1101 A Mock Exam

Email: john.hammond@carleton.ca Office: MacOdrum Library Room 408 Office Hour: December 13th from 11am–12pm

December 15th from 10am-11am

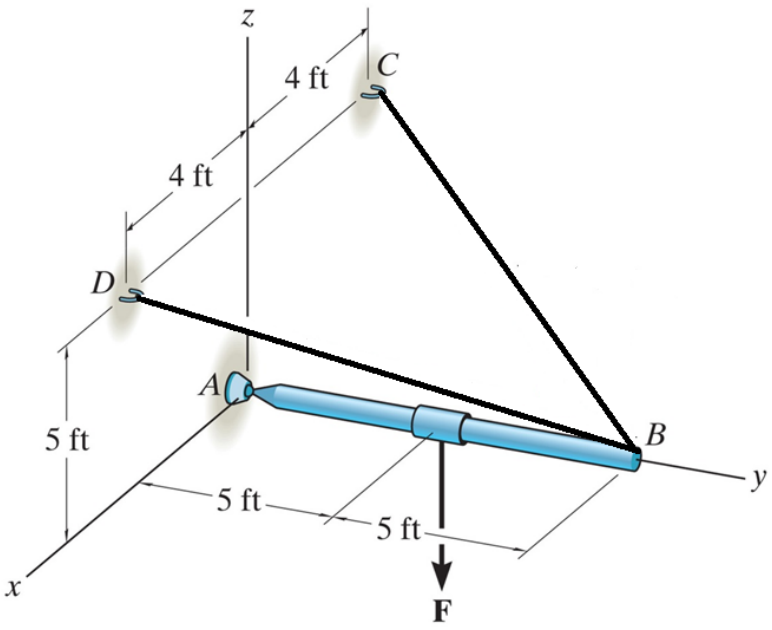
1. Determine the tension in the cable and the horizontal and vertical components of reaction of the pin A. the pulley D is frictionless and the cylinder weighs 100 lb. [1]



[1] Question and diagram modified from:

Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

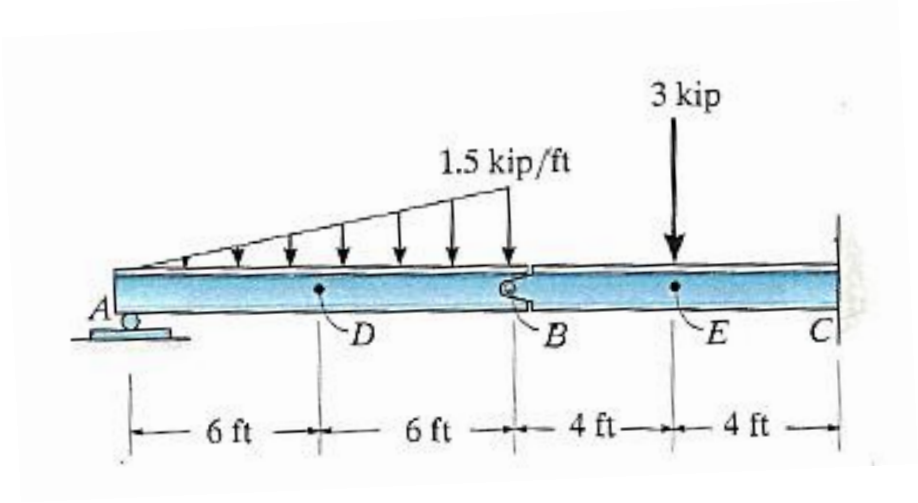
2. The boom AB is supported at A by a ball-and-socket joint and by two cables BC and BD. Calculate the tension in the cables and the *x*, *y*, *z* components of reaction at A if the force **F** is 80 lb downwards. [2]



[2] Question and diagram modified from:

Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

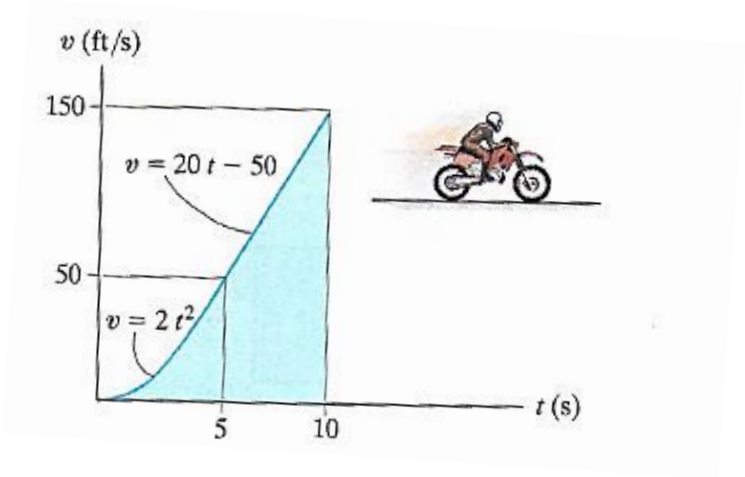
3. Determine the normal force, shear force, and moment in the beam at the section passing through point D. Note: the beam is pin connected at B. [3]



[3] Question and diagram modified from:

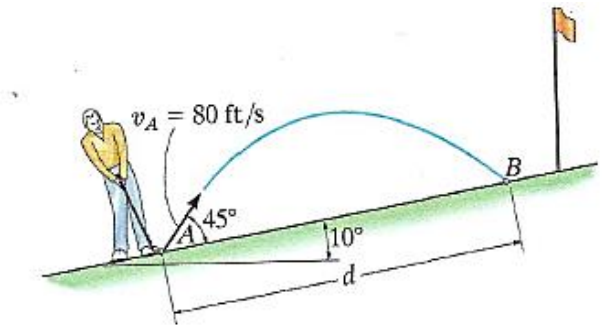
Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

4. A motorcyclist travels along a straight road with the velocity described by the graph. Determine the distance that the motorcyclist travels in 10 s. Also, construct the *s*-*t* graph for the motorcyclist's motion.[4]



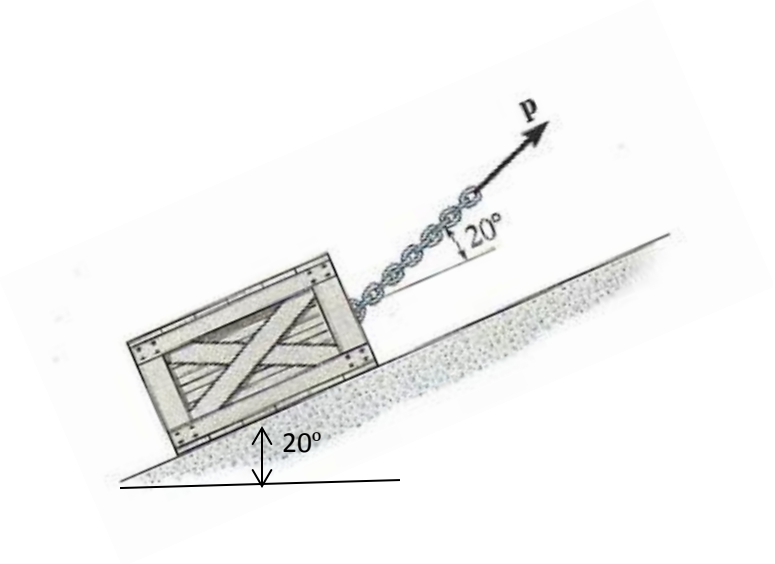
[4] Question and diagram modified from:
Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

5. A golf ball is struck with a velocity of 80 ft/s as shown. Determine the distance *d* to where it will land. Note g = 32.2 ft/s^2 in the FPS system.[5]



[5] Question and diagram taken from:
Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

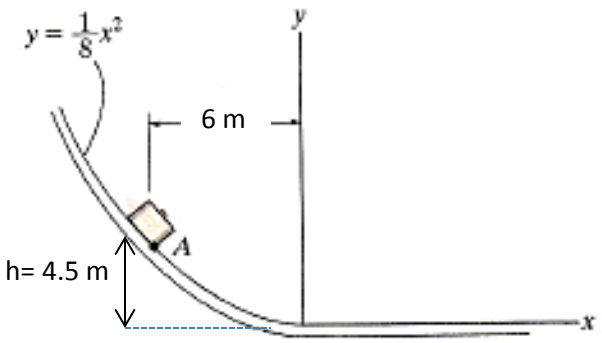
6. If P= 500 N and the coefficient of kinetic friction between the 80 kg crate and the inclined plane is $\mu_k = 0.10$, determine the velocity of the crate after 5 seconds. The crate starts from rest. [6]



[6] Question and diagram modified from:

Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

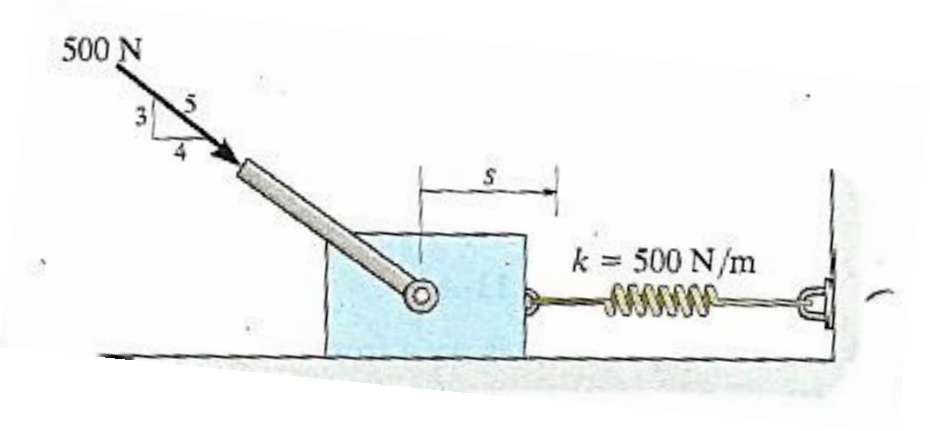
7. The 10 kg suitcase slides down the smooth curved ramp, which can be expressed as $y = \left(\frac{1}{8}x^2\right) m$. If the suitcase starts from rest at point A, determine the normal force on the suitcase when it reaches the bottom of the curved portion of the ramp. Also, find the magnitude of its acceleration given that its speed is not increasing when it reaches the bottom of the curved ramp. (Hint: use work and energy methods to find its speed at the bottom of the ramp) [7]



[7] Question and diagram modified from:

Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.

8. The spring is placed between the wall and the 20-kg block. If the block is subjected to a force of F = 500 N, determine its velocity when s = 0.5 m. When s = 0, the block is at rest and the spring is uncompressed. The contact surface is smooth.[8]



[8] Question and diagram modified from:
Hibbeler, R.C. *Engineering Mechanics: Statics and Dynamics*. Custom Edition for Carleton University. Upper Saddle River: Pearson Education, 2013. Print.