

Name _____ Section _____

ES204
Examination III
February 14, 1997

Problem	Score
1	/35
2	/35
3	/30
Total	/100

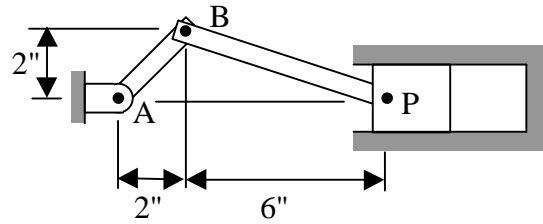
Show all work for credit
AND
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Problem 1

35 pts
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The crank AB has a **constant** clockwise angular velocity of 40 rad/s. What are the velocity and acceleration of piston P?



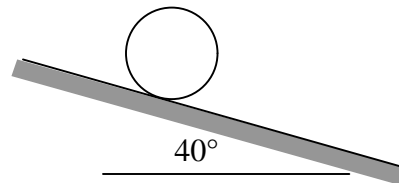
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Problem 2

35 pts
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A solid cylinder weighing one pound and having a radius of two inches is released from rest on the 40 degree incline as shown below. The coefficient of static friction between the incline and the cylinder is 0.3 and the coefficient of kinetic friction is 0.2. Determine:

- if the cylinder slips when it is released,
- the friction force,
- the angular acceleration, and
- the distance the cylinder moves down the incline in 2 seconds.



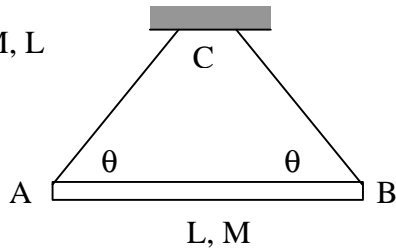
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Problem 3

30 pts
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A uniform steel beam is L long and has a mass M . If the supporting cable CB is cut, determine the equations necessary to find the tension T in the remaining cable AC an instant after the cut occurs. The beam may be treated as a slender bar. Clearly number your equations as you derived them and list your unknowns in the table provided. **DO NOT SOLVE THE EQUATIONS.**

knowns: θ , M , L



Unknowns
