

Physics 262: Problem Set #9

These problems are due by the end of the day on Friday, Mar. 6 in the graders' box.

NOTE: For each problem, your solution should begin with a brief statement of the problem, i.e. a description of the setup, including a list of the inputs and the goal.

1. Morin 9.16 (Staying above) p. 418
2. Morin 9.50 (Dipping low) p. 426
3. Morin 9.49 (Flipping a coin) p. 426
4. (K+K 8.2) A truck, initially at rest, has its back door fully open (180 degrees). It accelerates at a constant rate A . The door is the uniform kind, of mass m , height h and width w .
 - (a) Find the instantaneous angular velocity of the door as it swings through 90 degrees (i.e. straight back).
 - (b) Find the force of the hinges on the door at that moment.
 - (c) Will the door close?
5. Morin 10.3 (g_{eff} vs. g) p. 477
6. Morin 10.5 (Mass on a turntable) p. 478
7. Morin 10.17 (Magnitude of g_{eff}) p. 482
8. Morin 10.19 (Circular pendulum) p. 483
9. Morin 10.22 (Bug on a hoop) p. 483
10. (BONUS) Morin 10.26 (Coin on a turntable)