

PHYS 111

HOMEWORK #10

Due : 15 Nov. 2016

1. Problem 75, p. 218
2. Use the diagram for problem 81 on p. 218 of the text. The car starts from rest at point A, which is a height h above the bottom of the track. The radius of the loop is r .
 - a) Draw a FBD for the car when it is at the top of the circular loop. (5)
 - b) What is the minimum speed needed to keep the car from falling off the track? (10)
 - c) What is the height h required so that the car achieves this speed at the top of the loop? (10)
3. Problem 82, p. 218.
4. A rubber bullet of mass m and speed v strikes a can and bounces backward. A steel jacketed bullet of mass m and speed v strikes the same can and moves through the can, emerging from the opposite with a speed $v/2$. In which case was more force exerted on the can? Justify your answer.
5. Problem 8, p. 249
6. Problem 13, p. 249