

Homework Problem Set 6 – Due Tuesday, 10/25

Problem 1

Hewitt Chapter 7, Problem 56 (p. 129)

Problem 2

Hewitt Chapter 7, Problem 68 (p. 129)

Problem 3

Hewitt Chapter 7, Problem 72 (p. 129). (Assume that the force needed to keep the nail moving into the wall is constant).

Problem 4

Hewitt Chapter 7, Problem 82 (p. 129)

Problem 5

Hewitt Chapter 7, Problem 88 (p. 130)

Problem 6

Hewitt Chapter 7, Problem 114 (p. 131)

Problem 7

Hewitt Chapter 7, Problem 118 (p. 131)

Problem 8

Hewitt Chapter 7, Problem 120 (p. 131)

Problem 9

Two trucks are moving with the same **momentum**, although one has only $\frac{1}{2}$ the mass of the other. Which one will require more work (in the Physics sense) to stop?

Problem 10

I am pushing a 0.5 kg cart up a ramp. Initially, the cart is at rest, but once I stop pushing, it is at a point 0.3 m higher than its starting point and it is still moving further up the ramp

with a (instantaneous) speed of 2 m/s. (Neglect friction and any other external forces outside of gravity, my pushing, and normal force).

- a) How much work did I do on the cart?
- b) How much higher will it move up the ramp until coming to a stop?
- c) After coming to a stop, it will accelerate back down the ramp, getting faster and faster (I'm not interfering). What speed will it have as it passes the starting point where I began pushing it?

Problem 11 (XC)

Why can it be a smart idea for a boxer to let himself being pushed into the (elastic) ropes of the ring? Discuss how the elastic energy of the ropes help him come back swinging.