

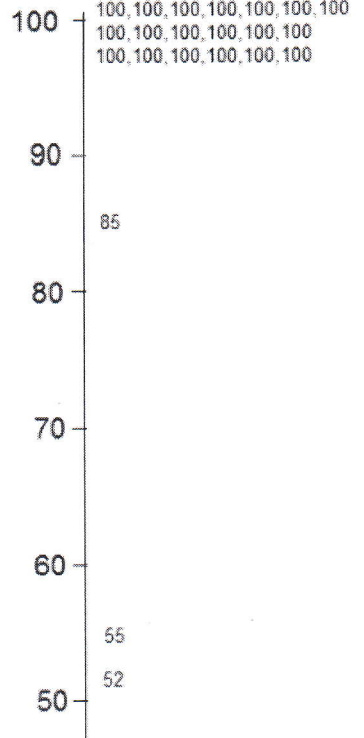
PHYS 211 College Physics I

Exam 4C

November 8, 2017

Name J. C. Daly

Grades



1. The breaks of a truck cause it so slow by applying a retarding force of 3.5×10^3 N to the truck over a distance of 750 m.

- a. What is the work done by this force on the truck? 2,625,000
- b. Is the work positive or negative? Negative

$$W = F \Delta x \cos \theta = -3.5 \times 10^3 \times 750$$

$$W = -2.625 \times 10^6 \text{ J}$$

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2. If electricity costs 12 ¢ per kilowatt-hour. What does it cost per month to leave a 75 watt light bulb on continuously? Assume a 30 day month.

6.48

$$75 \text{ W} \times \frac{1 \text{ kW}}{10^3 \text{ W}} = 0.075 \text{ kW}$$

$$30 \text{ days} \times \frac{24 \text{ hr}}{\text{day}} = 720 \text{ hr}$$

$$\text{Energy} = 0.075 \times 720 = 54 \text{ kW}\cdot\text{hr}$$

$$54 \text{ kW}\cdot\text{hr} \times 0.12 \frac{\$}{\text{kW}\cdot\text{hr}} = \$6.48$$



Figure 3

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3. Jimmy McFearless is cruising along at 23 m/s when he runs out of gas as he approaches the hill shown in Figure 3. The height of the hill, H , is 20 meters.

Neglecting friction, can he coast up the hill and reach the gas station?

Yes No

Justify your answer.

$$KE > PE$$

$$\frac{1}{2}mv^2 > mgh$$

$$v^2 > 2gh$$

$$(23)^2 > 2 \times 9.8 \times 20$$

$$529 > 392 \quad \text{yes}$$

Kinetic Energy at the bottom
of the hill is more than the
Potential Energy at the top of
the Hill