

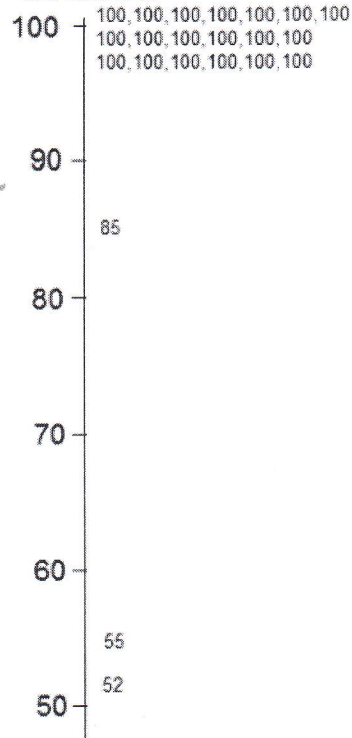
PHYS 211 College Physics I

Exam 4A

November 8, 2017

Name J.C. DALY

Grades



1. The breaks of a truck cause it so slow by applying a retarding force of 4.0×10^3 N to the truck over a distance of 984 m.

a. What is the work done by this force on the truck? 3,936,000 J

b. Is the work positive or negative? Negative

$$W = F \cos \theta = -4.0 \times 10^3 \times 984$$

$$W = 3.936 \times 10^6 \text{ J}$$

PHYS 211 College Physics I

Exam 4A

November 8, 2017

2. If electricity costs 14 ¢ per kilowatt-hour. What does it cost per month to leave a 60 watt light bulb on continuously? Assume a 30 day month.

\$6.05

$$60 \text{ Watt} \times \frac{1 \text{ kW}}{10^3 \text{ W}} = 0.060 \text{ kW}$$

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

$$W = 0.060 \times 720 = 43.2 \text{ kW}\cdot\text{hr}$$

$$43.2 \text{ kW}\cdot\text{hr} \times \frac{0.14 \text{ \$}}{\text{kW}\cdot\text{hr}} = \text{\$} 6.05$$

PHYS 211 College
Physics I
Exam 4A

Gas Station

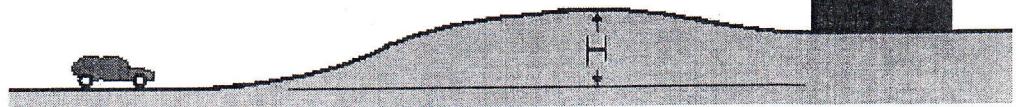


Figure 3

November 8, 2017

3. Jimmy McFearless is cruising along at 15 m/s when he runs out of gas as he approaches the hill shown in Figure 3. The height of the hill, H , is 18 meters.

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

Yes _____ No X

Justify your answer.

$KE > PE$

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

$$v^2 > 2gh$$

$$(15)^2 > 2 \times 9.8 \times 18$$

$$225 > 352.8$$

No

Not enough kinetic energy to
make it to the higher potential
energy at the top of the hill.