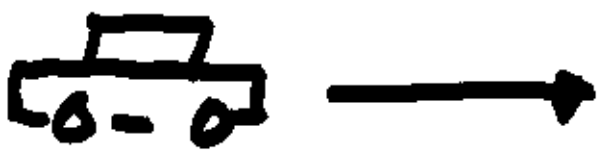
Forms of Energy.

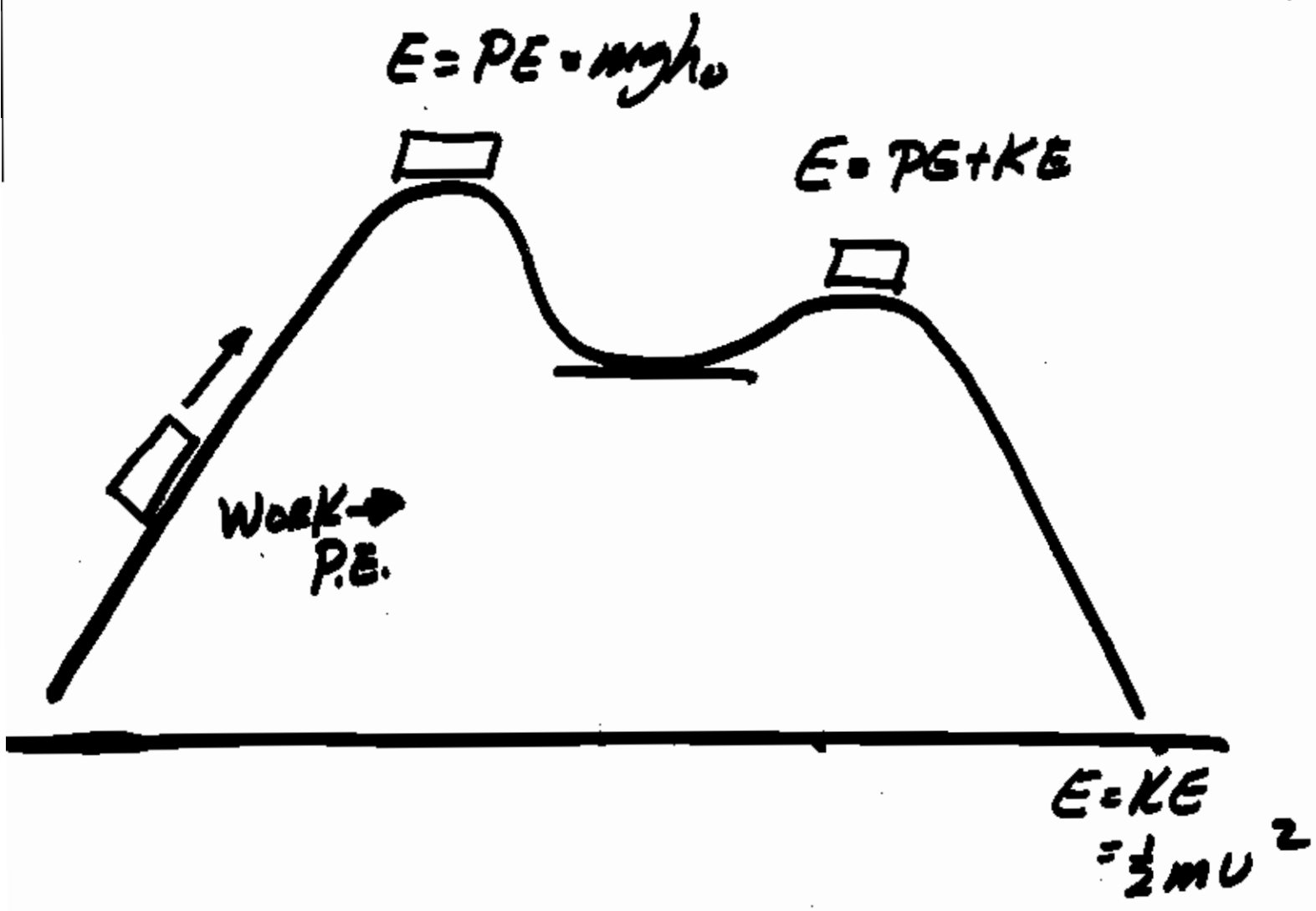
- Kinetic Energy.

[Energy due to movement]

Work done $= \frac{1}{2} m v^2 =$ K.E.



CAR



- Total Energy is Conserved.
  - Work can go into dissipating forms of Energy like: Heat

the potential Energy stored in a spring is

$$P.E = \frac{1}{2}Kx^2$$

$$Force = -Kx$$

3 How much more Energy does it take to Keep a CAR moving at 40 miles/hr than 10 miles/hr ?

a.) 2 times
b.) 4 times
c) 8 times
D.) 10 times
E.) 16 times

Potential Energy

$mgh. = P.E.$

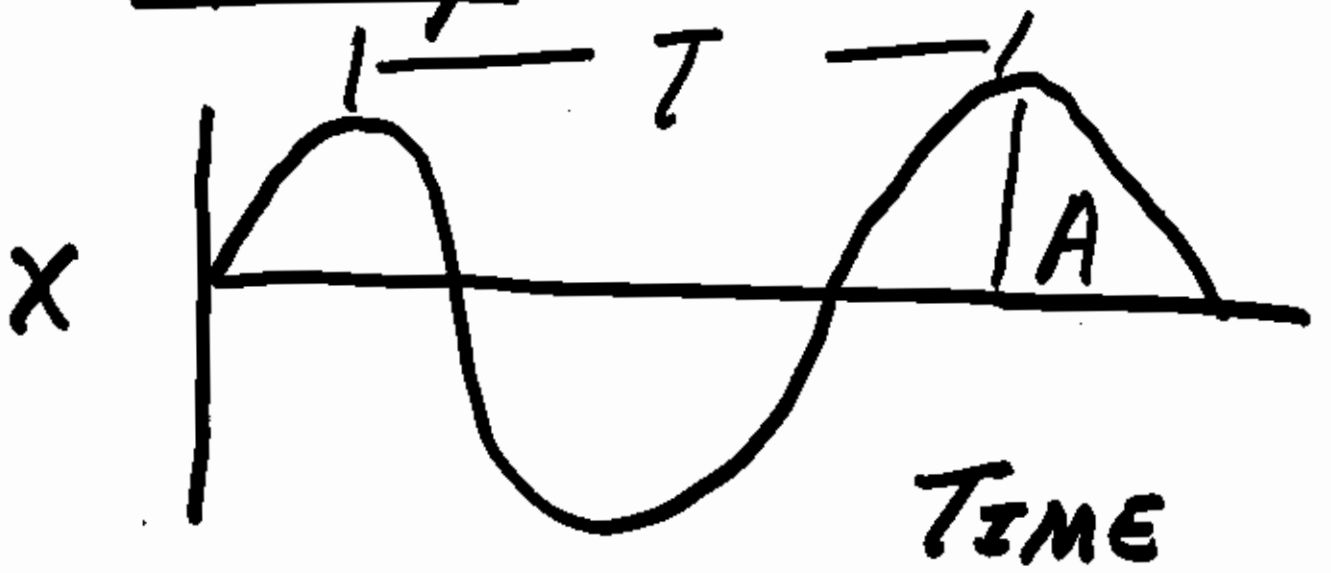
Joules

Spring

$P.E. = \frac{1}{2} K x^2$

$F = -Kx$

Spring



T- PERIOD

A- AMplitude

Simple harmonic Motion.

Frequency - the number of cycles per unit time.

$f = 1/T$

units hertz - Hz

A Radio Station Operates at 100 MHz. What is its Period of Oscillation?

1.] 0.01 sec
2.] 10^{-6} sec
3.] 10^{-8} sec
4.] 1 sec
5.] 10^{-3} sec

$f = \frac{1}{T}$ $T = \frac{1}{f} = \frac{1}{100 \cdot 10^6 / \text{sec}}$

$T = \frac{1}{10^8 / \text{sec}} = 10^{-8}$ sec

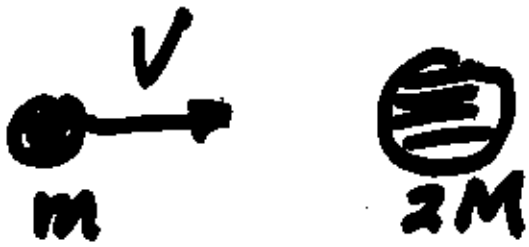
Q1

Two Lumps of clay (equal M) hit each other at right Angles with equal V.

The final [speed / Direction] will be.

- Just add the speeds. $V+V=2V$
- Just V = can't go faster
- ZERO SINCE $V-V=0$
- Add Like Vectors $\vec{V}=\vec{V}_1+\vec{V}_2$

Q2



A small Ball hits a large Ball. the small Ball is stopped by the collision. What is the speed of the large Ball?

- V
- 2V
- V/2
- V/4
- 4V