Energy Handout

II.   Energy (Joules) - 2 kinds

   A)   <u>Potential Energy</u> - _____ energy of that an object has due to its

   _____ or _____.

      1.   Gravitational P.E. $_g$ (PE is an abbreviation for Potential
              Energy)

P.E. $_g$ = _____ g - on earth = _____

              units

                              ΔP.E. = _____
Ex 1) What P.E. is gained when a 100kg object when it is raised 4m straight up?

                         ΔPE = mgΔh

Ex 1a) *What PE would be gain if the object were moved 4m to the right?* _____

      2.   <u>Elastic P.E.</u> - work stored in a deformed spring

         a)   <u>General Equation</u>   PE $_s$ = F · x

      F = Average F needed to deform spring   **x** = distance deformed

         b)   <u>Hookes law </u> - _____needed to **deform** an **ideal spring**, a

              given amount is directly **proportional** to its _____

      Example) Ideal Spring X

         F (force to deform)   X (distance deformed)
         2N   .3m
         4N   _____
         6N   _____
         8N   _____
         Force (N)

                         Stretch (m)   slope = F/X

   c)   Spring constant for ideal Spring X

              K = F/X =

         d)   **Elastic P.E.** = area of triangle under F vs x graph

              PE s =

e) PE_s in terms of k

1.   P.E.$_s$ = _____   **Average Force:** _____

2.   PE = _____   F = Kx   (On reference)

3.   **P.E.$_s$ =   _____**   **(On reference)**

Ex1)   A force of 12 N stretches a spring and makes it .15m longer.

a)   What the spring constant (k) of this spring?

b)   What's the potential energy of this spring?

B)   <u>Kinetic Energy</u> - the energy an object possesses due to its _____

Work/Energy Relationship: The kinetic energy an object possesses is equal to the

_____ done to get an object moving a certain speed or to stop it.

Equation…..   K E = _____

Relationships: K E / m _____   KE/ v   **_____**