Energy Handout

II. Energy (Joules) - 2 kinds

A) Potential Energy - _____ 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?

$$\Delta PE = mg\Delta h$$

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

2. Elastic P.E. - work stored in a deformed spring

a) General Equation $PE_s = F \cdot x$

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

b) Hookes law - _____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) Kinetic Energy - 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 _____