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gPE

This energy is usually used in finding potential energy it is pretty self-explanatory.

gPE= m x g x h

g= gravity m= mass h= height

PE= potential energy - energy that hasn't happened yet

m= measured in kg g= 9.8 m/s h= measured in meters

gPE= Nm= J

Example:

A 57 kg object is on top of a building, which is 30m tall, what is the gPE?

m= 57 kg g= 9.8 m/s h= 30 m

gPE= 57 kg x 9.8 x 30 m

gPE= 16758 J

Example 2: What would the gPE be for someone that has a mass of 100 kg and was standing on top of Temple College (20 meters)?

100 x 9.8 x 20 = 19600

Ex 3: If a man standing on top of the empire state building (381 meters) had a gPE of 280,035 joules what is his mass?

? x 9.8 x 381 = 280,035

Tip: The number that you will use for gravity will always be 9.8 unless told otherwise for these types of equations.

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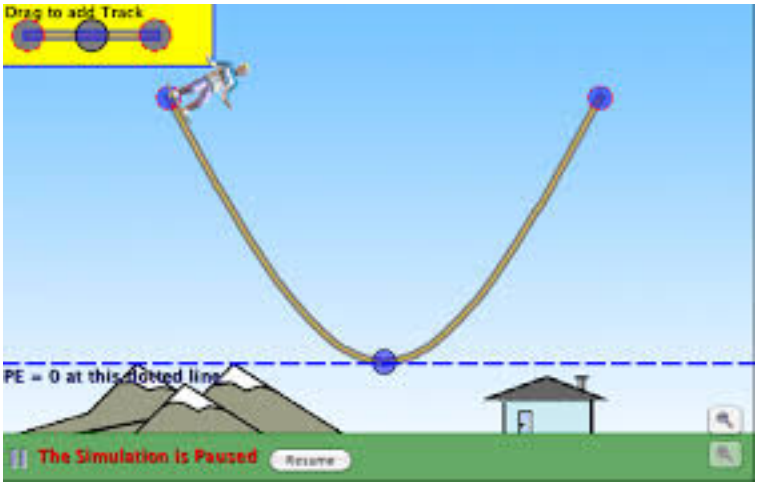

ePE

Elastic Potential Energy is energy that is stored. This is usually used when working with springs.

ePE= ½ k x d^2

e= elastic k= spring constant d= distance stretched/compressed

PE= potential energy - energy that hasn't happened yet

ePE= Nm= J

Example:

m= 500 g d=.42m a= 9.8m/s

F= m x a → F= .500 kg x 9.8 → F= 4.9 N

k= F/d → k= 4.9N / .42m → k= 11.66 Nm

- (the spring constant is only constant to that spring because each spring is different)

ePE= ½ 11.66 x $.42^2$ → 1.02 J

Tips: K= springs constant but the constant isn't always constant it changes most of the time it is only constant for a spring of that size

The units used in these problems are Joules.

The constant will always change!

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