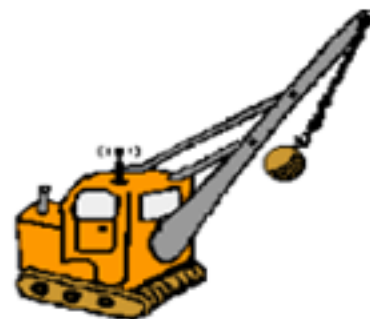


Which are examples of Potential Energy?



In which of the following is work being done?



The force required to lift an object is equal to the objects weight.

Kilogram is the unit for what quantity? **mass**

Energy cannot be created or destroyed, but may change form.

Weight is expressed in what units? **Newtons**

In order to have Kinetic Energy, an object must have a velocity.

In order to have Gravitational Potential Energy, an object must have a height.

Power is the time rate of doing work.

Work is the transfer of energy through motion.

acceleration

time

force

Quantities and Units

Joules(J) Kinetic Energy(KE)

m/s/s acceleration(a)

Watts(W) Power(P)

Newtons(N) Force(F)

Joules(J) Potential Energy(PE)

kilograms(kg) mass(m)

Joules(J) Work(W)

Newtons(N) Weight(F_g)

Work is done in which of the following scenarios???

A wall is pushed on by
a 1st grader!!

NO

A football is carried
into the endzone!!

A car is pushed
across the lot!!

A bag of groceries
is lifted!!

Yes

A wagon is pulled
across the yard!!

As an object falls, it has

Both

Kinetic Energy
Potential Energy



The kinetic Energy of an object increases as its velocity increases.

Gravitational Potential Energy is only affected by its height.

Stored Energy is Potential Energy.

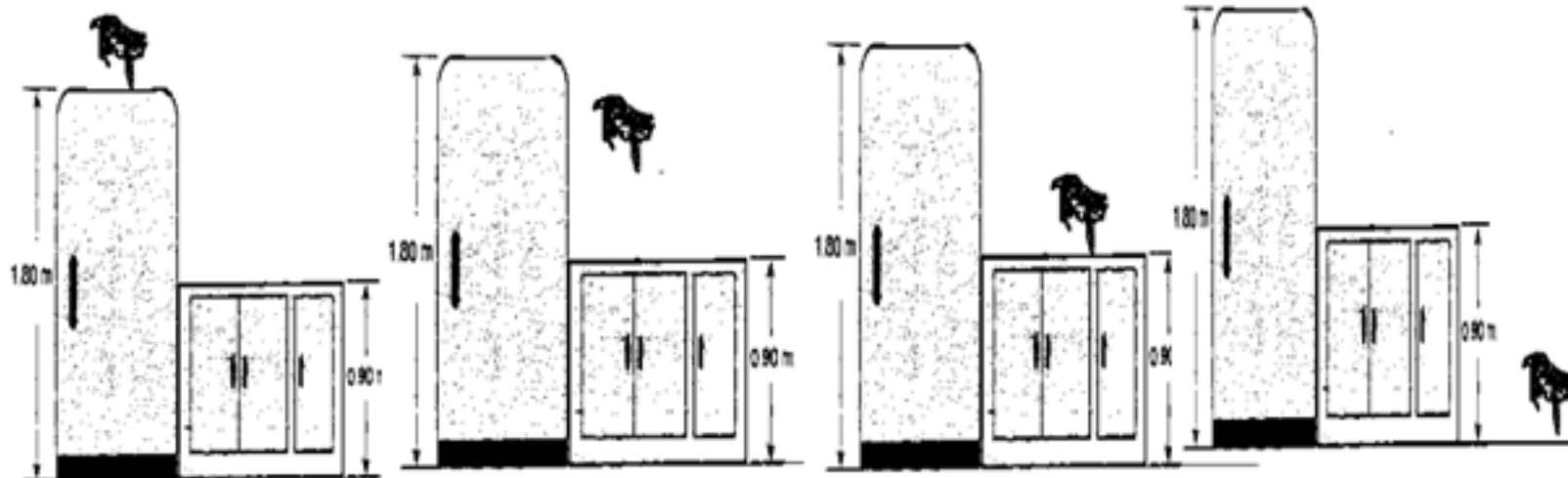
Energy is the ability to cause Change.

Force

Kinetic Energy

acceleration

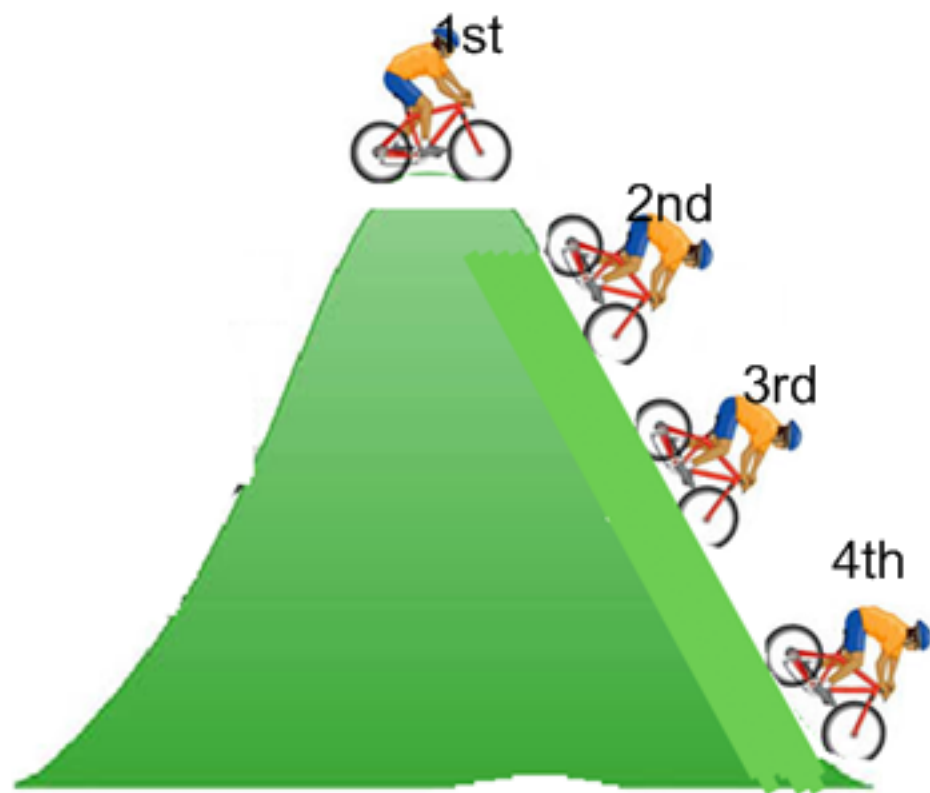
Place the following in order of Highest PE to Lowest PE!!!



Rank the following in order from greatest KE to least KE!!!



Rank the following in order from greatest PE to least PE!!!



Drag these PE/KE combinations where they make sense!!

PE = 100 J
KE = 0 J

A

PE = 75 J
KE = 25 J

C

PE = 40 J
KE = 60 J

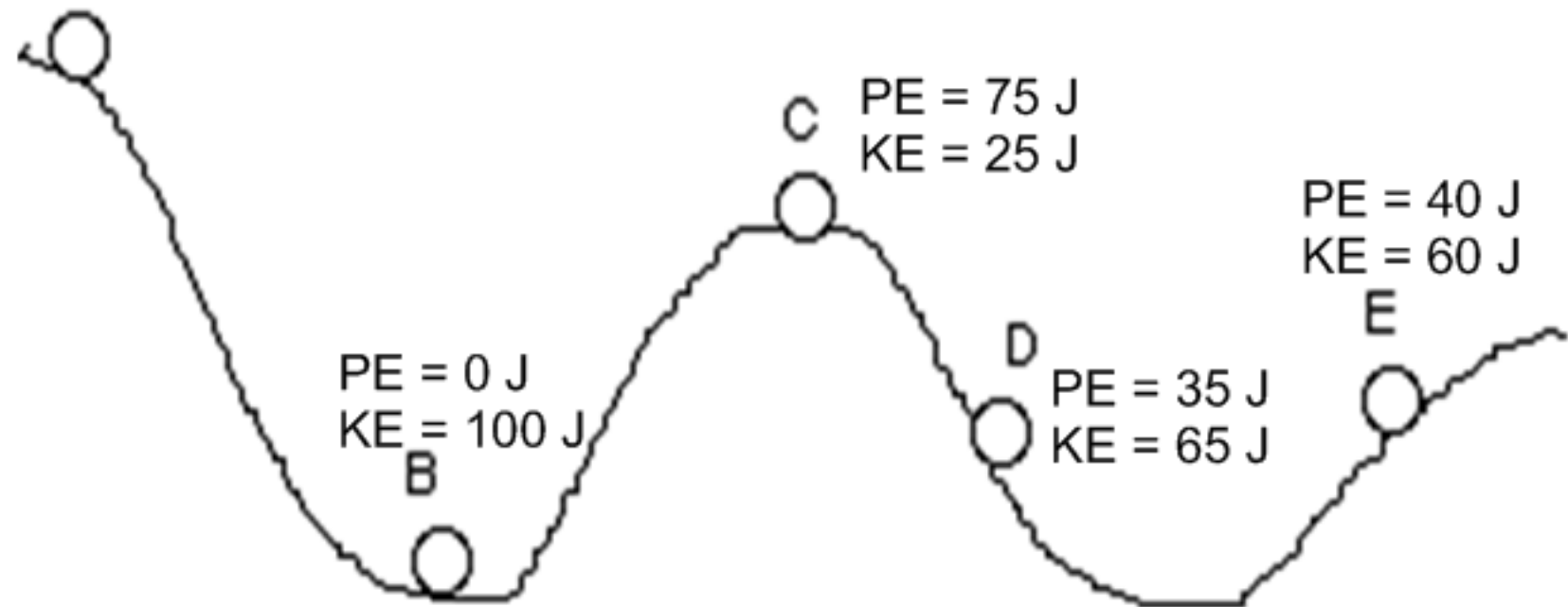
E

PE = 0 J
KE = 100 J

B

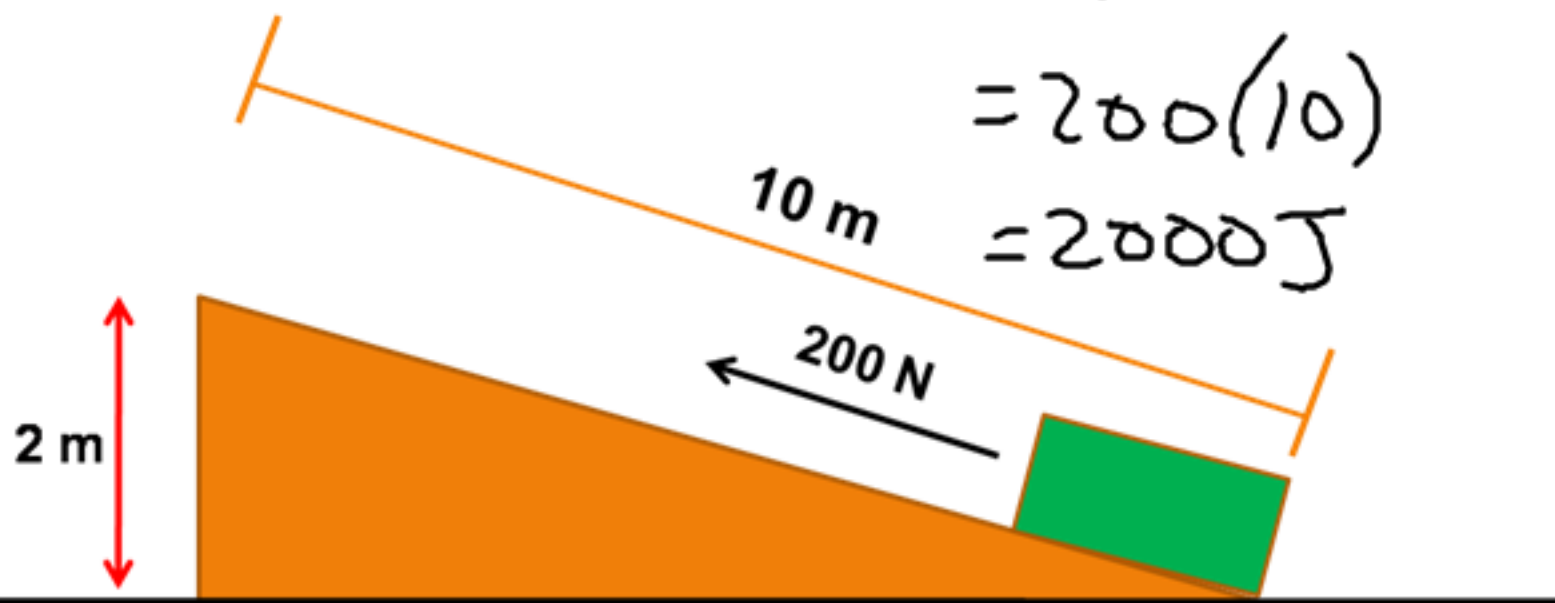
PE = 35 J
KE = 65 J

D



How much work is done pushing the box up the incline?

$$\begin{aligned} W &= F d \\ &= 200(10) \\ &= 2000 \text{ J} \end{aligned}$$



A 450 kg rock rests on a 20 m high cliff. How much potential energy does the rock have?

Given:

$$m = 450 \text{ kg}$$

$$h = 20 \text{ m}$$

$$PE = ?$$

$$PE = m g h$$

$$PE = 450\text{kg}(9.80\text{m/s/s})(20\text{m})$$

$$PE = 88200 \text{ J}$$

A 840 N boulder rests on a 75 m high cliff. Determine the Gravitational Potential energy of the boulder.

Given:

$$F_g = 840 \text{ N}$$

$$PE = F_g h$$

$$h = 75 \text{ m}$$

$$PE = 840 \text{ N}(75\text{m})$$

$$PE = ?$$

$$PE = 63,000 \text{ J}$$

Determine the kinetic energy of 1500 kg car moving at 15 m/s.

Given:

$$m = 1500 \text{ kg}$$

$$v = 15 \text{ m/s}$$

$$KE = ?$$

$$KE = \frac{1}{2} m v^2$$

$$KE = \frac{1}{2} (1500\text{kg})(15)^2$$

$$KE = 168,750 \text{ J}$$

A 500 N force is applied to a box to push it 25 m across the room. How much work was done?

Given:

$$\underline{F = 500 \text{ N}}$$

$$W = F d$$

$$W = 500\text{N}(25\text{m})$$

$$d = 25 \text{ m}$$

$$W = 12,500 \text{ J}$$

$$W = ?$$

A 250 kg object is lifted to a height of 6 m in a time of 19 s. How much power is exerted?

$$\mathbf{P = \frac{W}{t} = \frac{m\ g\ h}{t}}$$

Given:

$$m = 250\text{ kg}$$

$$h = 6\text{ m}$$

$$t = 19\text{ s}$$

$$\begin{aligned} &= \frac{250\text{kg}(9.8\text{ m/s/s})(6\text{m})}{19\text{s}} \\ &= 773\text{ W} \end{aligned}$$

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Click on Energy Test Review.
Follow instructions!!