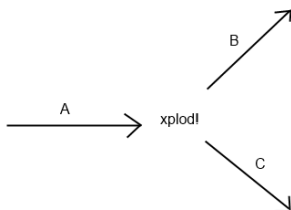


Work, Energy and Momentum Socrative

1. Kinetic energy is:
 1. Energy being transferred
 - 2. Movement energy**
 3. Stored energy
 4. A force
 5. All of the above
2. Work done is:
 - 1. Energy being transferred**
 2. Movement energy
 3. Stored energy
 4. A force
 5. All of the above
3. An elastic collision is defined as one in which:
 1. Momentum is conserved
 2. Some energy is lost
 - 3. No energy is converted from kinetic to other forms**
 4. Equal and opposite forces act on all objects in the collision
4. Describe how, given all necessary speeds and masses of the objects involved in a collision, you would determine whether the collision is elastic.
Calculate the kinetic energy of all objects before and after. Add to get total before and total after. Compare; if the number is the same the collision is elastic.
5. When calculating the work done to lift an object, given its mass and height, what is the force that is used in $W = Fs \cos\theta$?
The weight $F = mg$ of the object is the force that must be cancelled to lift it.
6. In the question above, what is the angle used in $W = Fs \cos\theta$?
The angle between the force and the direction it moves. Zero in this case since they are the same direction.
7. A rocket flying to the right explodes into two pieces as shown. Write an equation relating the momenta of the three objects. Give a reason.



$p_A = p_B + p_C$ (with arrows over the top) because total momentum is conserved

8. Describe how you would find the total momentum of two objects moving at right angles to each other.
They are added vectorially (head to tail) to form a triangle. Pythagoras' theorem is then used to find the magnitude of the added momenta.

MORE QUESTIONS ON OTHER SIDE

9. Define Δp

$$\Delta p = p_f - p_i \text{ (with arrows over the top)}$$

10. Which of the following is the correct rearrangement to find v from p and m ?

1. $v = pm$
2. $v = m/p$
3. **$v = p/m$**
4. $v = p - m$
5. $v = m - p$

11. In one experiment, two objects made of steel are collided with each other. In another experiment, two objects made of bubble wrap are collided with each other. The objects in both experiments have the same mass, initial speeds and final speeds.

1. **The objects made of steel will experience more force than the bubble wrap objects.**
2. The objects made of bubble wrap will experience more force than the steel objects.
3. The force is the same in both cases.

$F = \Delta p / \Delta t$, and the time of collision is longer for the objects made of bubble wrap.

12. Choose any one of the following and explain it using an analogy: work done, elastic collision, vector addition