

PHYSICS WORKSHEET  
MOMENTUM AND ENERGY

1. A 5 kg ball and a 7 kg ball are moving toward each other. Each ball is traveling at 6 m/sec. After the collision the 5 kg ball bounces back at 3 m/sec.
  - a. What is the total momentum before the collision?
  - b. What is the velocity of the 7 kg ball after the collision?
2. A 2.5 kg ball and a 5 kg ball are both traveling east. The 5 kg ball is catching up to the 2.5 kg ball. The 5 kg ball is moving at 25 m/sec. The 2.5 kg ball is moving at 7 m/sec. After the collision the 5 kg ball is moving in the same direction at 10 m/sec.
  - a. What is the total momentum before the collision?
  - b. What is the speed of the 2.5 kg ball after the collision?
3. A 20 kg bomb explodes and breaks into two pieces. After the explosion a 3 kg piece moves due north at 30 m/sec.
  - a. What is the total momentum before the explosion?
  - b. What is the velocity of the second piece after the explosion?
4. A 12 kg lump of clay traveling at 10 m/sec is about to collide head-on with a 9 kg lump of clay moving at 23 m/sec. After the head-on collision they stick together. What is the velocity of the one lump of clay after the collision?
5. You carry a 20 kg rock up a flight of stairs which is 30 feet tall. (1 meter = 3.25 feet) What is the change in potential energy of the rock?
6. What is the kinetic energy of a 1000 lb car moving at 35 m/sec? (1 kg = 2.2 lbs)
7. A 700 kg Harley Davidson moving at 15 m/sec accelerates to 28 m/sec. What is its change in Kinetic Energy?
8. What are the units on momentum?
9. What are the units on force?
10. What are the units on energy?