**Power, Impulse & Momentum**

These problems represent a review of the types of problems you will see on the CSCOPE assessment.

1. A 50 kg crate is lifted to a height of 2.0 meters in the same time as a 25.0 kg crate is lifted to a height of 4 meters. Compare the power rating of the two events.
2. Using 1000. J of work, a small object is lifted from the ground floor to the third floor of a tall building in 20.0 seconds. What power was required in this task?

**Momentum**

1. A 2250 kg pickup has a velocity of 25 m/s to the east. What is the momentum of the truck? (Remember momentum is a vector)
2. What velocity must a car with a mass of 1210 kg have in order to have the same momentum as the pickup in problem #3?

**Impulse – Momentum**

1. A 1400 kg car moving westward with a velocity of 15 m/s hits a utility pole and is stopped in .30 s. How much force was exerted on the car during the collision?
2. A hockey player applies an average force of 80.0 N to a 0.25 kg hockey puck for a time of 0.10 seconds. Determine the impulse experienced by the hockey puck.
3. If a 5-kg object experiences a 10-N force for a duration of 0.10-second, then what is the momentum change of the object?
4. A baseball player hits a 2.5 kg ball with a force of 20 N. The duration of the force was .05 s.
   1. Calculate the impulse delivered to the ball.
   2. What is the velocity of the ball as it left the baseball bat?