Force Numerical Practice Sheet

1. An iron sphere of 1 kg moving with a velocity of 20 m/s on a cemented floor comes to rest after travelling a distance of 50 m. find the force of frictional force.
2. A force of 5 N acts on a body A produces an acceleration of $2m/s^2$. the same force is acting on B to produce acceleration of $5m/s^2$. Find the acceleration when both of the objects are tied together.
3. Two glass spheres of masses 10 kg and 20 kg are moving in a straight line in the same direction with velocity 3m/s and 2m/s respectively. They collide and the first glass sphere is moving with a velocity of 2.5 m/s. find the velocity of the other glass sphere.
4. A bullet of mass 20 gm moving with a velocity of 200m/s gets embedded in a wooden block of mass 980 kg. calculate the velocity acquired by the block.
5. A gun of mass 500kg fires a bullet of mass 10 gm with a speed of 100m/s. find the momentum of the bullet, the initial momentum of the gun and the bullet together. Recoiling velocity of the gun.
6. A body of mass 100 kg is accelerated uniformly from 5m/s to 10 m/s in 5 seconds. Calculate the initial momentum, final momentum and force applied on the body.
7. Two balls of masses m and 2m are moving with velocities 2v and v respectively. Compare their inertia, momentum and force if the time taken is same
8. An object of mass is moving with a constant speed of 2m/s on a friction less table. What force is required to make the object moving with the same velocity?
9. A 40 kg shell is moving at a speed of 72km/hr. it explodes into two pieces. One piece of mass 15kg stops. calculate the speed of the other piece.
10. A car weighing 16000kg moving with a velocity of 30 m/s retards uniformly coming to rest in 20 seconds. Calculate the
    a) Initial momentum
    b) Final momentum
    c) Rate of change in momentum
    d) Magnitude of the force
    e) Acceleration of the car