Physics 20

3.3 Newton’s Second Law

1. An 11.0 kg object is thrown vertically into the air with an applied force of 145N. What is the initial acceleration of the object?
2. A 12.0 kg object is pushed with a horizontal force of 6.0 N east across a horizontal table. If the force of friction between the 2 surfaces is 2.0 N, what is the acceleration of the object?
3. A 15.0 kg object is thrown vertically into the air. If the initial acceleration of the object is 8.80 m/s2, what is the applied force?
4. A 20.0 kg object is pulled horizontally along a level floor with an applied force of 27.0 N. If this object is accelerating at a rate of 0.80 m/s2, what is the magnitude of the force of friction?
5. An object is pulled west along a horizontal surface with a net force of 12.0 N. If the object accelerates from rest to a velocity of 4.0 m/s while moving 5.0m, what is the mass of the object?
6. A 6.3 kg object is thrown upward with an acceleration of 0.45 m/s2. What is the magnitude of the force applied to the object?
7. What is the tension in the cable of an kg elevator that is
   1. Acceleration downward at a rate of 1.05 m/s2
   2. Accelerating upward at a rate of 1.05 m/s2
   3. Moving downward at a constant velocity of 1.10 m/s
8. An object has a mass of 36.0 kg is pushed along a horizontal surface with a force of 85.0 N. If the force of friction is 72.0 N, what is the magnitude of the acceleration of the object?
9. A horizontal force of 90.0 N is required to push a 75.0 kg object along a horizontal surface at a constant speed, what is the magnitude of the force of friction?