**Force Practice Problems**

1. Zookeepers lift a stretcher that holds a sedated lion. The total mass of the lion and the stretcher is 175 kg and the lion’s upward acceleration is 0.67 m/s2. What is the force necessary to produce this acceleration?
2. What is the net force necessary for a 1600 kg automobile to accelerate forward at 20 m/s2?
3. A baseball accelerates downward at 9.8 m/s2. If the gravitational force acting on the ball is 1.4 N, what is the baseball’s mass?
4. A sailboat and its crew have a combined mass of 655 kg. If the sailboat experiences an unbalanced force of 895 N pushing it forward, what is the sailboat’s acceleration?
5. A 5.5 kg watermelon is pushed across the table. If the acceleration of the watermelon is 4.3 m/s2 to the right, what is the net force on the watermelon?
6. A block pushed with a force of 13.5 N accelerates at 6.5 m/s2 to the left. What is the mass of the block?
7. The net force on a 925 kg car is 37 N as it pulls away form a stop sign. Find the car’s acceleration.
8. You are pushing a friend on a sled. You push with a force of 40 N. Your friend and the sled together have a mass of 80 kg. What is the acceleration of your friend on the sled?
9. An airplane with a mass of 5000 kg needs to accelerate at 5 m/s2 to take off before it reaches the end of the runway. How much force is needed from the engine?
10. A 0.5 kg car is rolling down hill with an acceleration of 4 m/s2. What is the force necessary to cause this acceleration?

1. What is a force?
2. What are forces measured in?
3. What is a Newton?
4. What is the “net force”?
5. What is a balanced force?

1. What is an unbalanced force?
2. What is the result of an unbalanced force?
3. What is inertia?
4. List all 3 of Newton’s Laws and give me an example of each one:

1st Law:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2ndLaw:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3rdLaw:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Example:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Recap:**

1. What is speed?
2. What are the units for speed?
3. What is acceleration?
4. What are the units for acceleration?
5. What is density?
6. What are the units of density?
7. What is force?
8. What are the units of force?