Newton’s 3rd Law Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Directions: Complete the following by using one of the words below.

Newton’s first law Newton’s second law Newton’s third law

Law of conservation of momentum Law of Universal Gravitation

1. The law that states that every object maintains constant velocity unless acted on by an unbalanced force is .
2. The law that states if two objects with different masses and traveling with different velocities collide, what law allows you to predict the motion of the objects after the collision?
3. The law that states that for every action force there is an equal and opposite reaction force is .
4. The law that states all objects in the universe attracts each other through gravitational force.
5. The law that states that the unbalanced force acting on an object equals the object’s mass times its acceleration is .
6. Describe what momentum is.

Calculate the following:

1. If a 450 kg boat is traveling at an average velocity of 55 km/ hour north, what is the momentum of the boat?
2. A 35 kg dog is running with a velocity of 20 km/hour east, what is the momentum of the dog?
3. What is the momentum of a 335 kg car that has traveled a distance of 100 meters in 6 seconds south?
4. If a 1,500 kg plane’s momentum is 50 kg \* m/ s upward, what is the velocity of the plane?
5. Cindy is in charge of a car pool. She drives 5 miles to the first house to pick up one person, 10 miles to the second where she picks up one more person, and 15 miles from there to work. It takes her an average of 30 minutes to get from her house to work. If all of the people in the car have a mass of 70 kg and the car has a mass of 300 kg, what is Cindy’s average momentum throughout the trip?