

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

## Newton's Second Law of Motion

The second law states that the acceleration of an object is dependent upon two variables - the net force acting upon the object and the mass of the object. The acceleration of an object depends directly upon the net force acting upon the object, and inversely upon the mass of the object. As the force acting upon an object is increased, the acceleration of the object is increased. As the mass of an object is increased, the acceleration of the object is decreased.

1. The acceleration of an object is \_\_\_\_\_ related to the net force exerted upon it and \_\_\_\_\_ related to the mass of the object.

- a. directly, inversely b. inversely, directly c. directly, directly d. inversely, inversely

**Answer the following questions with T/F (True or False).**

2. Newton's second law of motion deals with gravity.
3. If the mass of an object increases the acceleration of the object also decreases.
4. If the force acting on an object is increasing the acceleration is also increase.

**Answer the following questions.**

5. What is the major problem that came up in the performance of your vehicle?
6. How did the distribution of weight of the vehicle affect the traction of the wheels?
7. What factors did you take into account when designing your vehicle?

In the space below draw a picture of a car going down a hill and explain what is going on using Newton's Second Law of Motion. What is the force that is acting on the object?