## The Gravitational Force

## Practice Your Understanding

| Name: |  |
|-------|--|
| Date: |  |

1. Using the Newton's Law of Gravitation simulation, Coulomb's Law simulation, set the position of the red planetary body to be 19 m away from the origin, and the blue planetary body to be -10 m away from the origin. Choose the mass of the red planetary body to be 1327 kg and the mass of the blue planetary body to be 541 kg. What is the resultant force calculated in the simulation? What is the sign of the force calculated in the simulation? Is this a large force or a small force? Record your observations and answers in the box below.

2. Now repeat question 1 choosing a smaller distance between the planetary bodies, and have the planetary bodies have different masses, either both very small, or both very large. What is the resultant force calculated in the simulation? What is the sign of the force calculated in the simulation? Is this a large force or a small force? Record your observations and answers in the box below.

3. You will now go to the Programming Exercises Newton's Law of Gravitational Attraction Graph and plot the gravitational force vs. the distance between the planetary bodies. What is the curve of the graph? Is it linear? Parabolic? What can you understand from the graphical trend relating the gravitational force with the distance? Record your answer in the box below.