Name:

Date:

Final Review: Universal Law of Gravitation

You must show your work beside each problem!

1. A meteor is speeding towards Earth! Given that you are a superhero disguised as a high school student, you fly into outer space to hurl the meteor away and save Earth from imminent doom! While in outer space, it is true to say….
   1. That you experience no gravity.
   2. That you are massless.
   3. That you are shielded from cosmic radiation.
   4. That you feel weightless.
2. All masses are said to
   1. Attract all other masses.
   2. Repel all other masses.
   3. Not interact will other masses.
3. A newly discovered planet, Physicfun, is found to have gravitational field strength of 4.5 m/s2. The estimated radius of the unknown planet is 7.3 x 105m. What is estimated mass of this new planet?
   1. 3.595 x 1022 kg
   2. 4.925 x 1016 kg
   3. 5.632 x 10-22 kg
   4. 2.665 x 102 kg
4. Billy-Bob, mass 80-kg, is attracted to Bobby-Jo, mass 65-kg. If the two sit 1.2 m apart, how great is the attraction between the two?
   1. 4.33 x 103 N
   2. 2.89 x 10-7 N
   3. 2.41 x 10-7 N
   4. 3.61 x 103 N
5. If Billy-Bob and Betty-Jo from question four sat closer together, then the attractive force between them will…
   1. increase b. decrease c. stay the same
6. A 500-kg satellite is orbiting 9000 m above Earth. Earth has a mass of 5.98 x 1024 kg and a radius of 6.37 x 106 m. What is the force of attraction between the satellite and Earth?
   1. 4.47 x 103 N
   2. 2.46 x 109 N
   3. 4.91 x 103 N
   4. 3.13 x 1010 N