Honors Physics: Gravitation **# 1** Name:_____

**Objectives: P3.1b, 3.1A, P3.6A,B,C,d**

Directions: Please show knowns, formula and solutions for full credit.

1. If the mass of two objects is each doubled, what happens to the force?

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2. If the masses remain constant, but the distance of separation is reduced to ½ the original distance, what happens to the force?

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3. If the masses remain constant, but the distance of separation is reduced to ¼ the original distance, what happens to the force?

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4. If both the masses and the distance of separation are doubled, what happens to the original force?

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5. If one of the masses is doubled, the other remains the same, and the distance between them is tripled, what happens to the force?

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6. If two stars pull on each other with a certain force, how would it change if the mass of each star became three times as great and the distance between them tripled?

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7. If your mass is 90kg and your friend's mass is 120kg. What is the force of attraction between each of you if the distance is 2 m?

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8. An experiment showed that the attraction between a 5kg and a 5770kg mass was 5.77E -6 n. How far apart were the masses?

knowns formula solution

_____

9. If you weighed 637n on earth, how much would you weigh on Mars?( mass= 6.37 E 23 kg radius= 3.43 E 6 m)

knowns formula solution

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10. The radius of the sun is 110 times that of the earth and its mass is 330,000 times the earth's. What would 1 kg of matter on the sun weigh?

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