**IB Physics**

**16 E-G Group Quiz**

Name

**Show your work, and circle your answers and use sig figs to receive full credit.**

   F = ma

1. What is the gravitational force on a 3.40 kg mass in a gravitational field with a strength of 9.81 N/kg?

2. A -140. μC charge experiences a force of 1.50 N to the right. What is the magnitude and direction of the electric field?

3. A 3.20 kg mass on the moon experiences a force of 5.15 N. What is the gravitational field strength on the moon?

4. A 72,100 N/C electrical field to the right exerts what force on a proton? (Force and direction)

5. A proton accelerates North at 9.58x108 m/s/s. What is the magnitude and direction of the electric field?

6. An electron is in a 317 N/C electric field to the West. What is the magnitude and direction of its acceleration?

  (← not in data packet - memorize this!!!!)

7. What is the electrical field 82.0 cm to the right of a -2.10 μC charge? (Magnitude and direction)

8. Where is the electrical field 1.25x104 N/C straight up in the proximity of a 13.0 μC charge. (Location and distance)

9. I am 2.15 m to the left of an unknown charge, and there is an electric field of 1.65x105 N/C to the right. What is the magnitude and polarity of the charge? (How many C, and is it + or -)

10a. What is the gravitational field on the surface of a planet with a mass of 1.60x1023 kg, and a radius of 1.85x106 m?

10b. What is the gravitational field 3.50 m to the left of a (very dense) mass of 6.40x1012 kg? (Magnitude and direction)

11. Where in the proximity of a 5.00 kg shot put is the gravitational field 2.08x10-11 N/kg to the right? (Location and distance)

12. I am 15.0 m to the right of an unknown mass and there is a gravitational field of 2.16 N/kg due to the mass. Which direction is the field, and what is the mass?

13. Find the gravitational field at p and q:



p =

q =

14. Find the electric field at p and q:

 

p =

q =

15. Find the electric field at point p. Draw the electric field vector, and label its magnitude and direction. Charge A is -3.20 µC, B is +2.40 µC, and each grid line is a meter.



16. Find the gravitational field at point p. Draw the gravitational field vector, and label its magnitude and direction. Mass A is 2.50x1012 kg, B is 5.10xs1012 kg, and each grid line is a meter.

