Name: _____ per. _____

UCM & ULG Practice Written Exam

How fast is the moon travelling as it orbits the Earth?

Earth mass = 6×10^{24} Kg

Moon mass = 7.4×10^{22} Kg

distance Earth–Moon = 3.9×10^{8} m

1. Is the Moon experiencing a Centripetal Force? _____
2. What evidence proves that the Moon must *have a Centripetal Force on it*? _____
3. What is the cause or name of the Centripetal Force on The Moon? _____
4. Draw and label a vector arrow on the diagram above showing the Fc on the Moon.
5. Use the space below to calculate the amount of Force pulling on the Moon.

6. Draw and label a vector arrow on the diagram above showing the velocity that the Moon has.
7. Draw a dotted line to show the Moon's actual path.
8. What is the name of the "type of velocity" the Moon has? _____
9. Use the space below to calculate the amount of velocity that the Moon has.

Practice Essay Questions

51. Explain what a centripetal force is and give some examples. Are centripetal forces real?

52. The text claims that the moon is falling around Earth. Explain what this means. How is tangential velocity related to this? Why doesn't the moon collide with Earth?

53. Discuss how the force of gravity between two masses depends on the size of their masses and the distance between them. Give a numerical example.

Problem

54. The tangential speed at the outer rim of a Ferris wheel is 10 m/s. What is the tangential speed of a position half way from the center to the outer rim?

55. By what factor would your weight be multiplied if Earth's diameter were 2 times as big and Earth's mass remained unchanged?