Forces on the Tides: The Attraction of the Sun and the Moon

Geology Mr. Traeger

Name: _____ Period: _____ Date: _____

1. What is Isaac Newtonôs Law of Gravitation?

2. What is the value of ñGòin the Law of Gravitation?

3. What do ñ$m_1$òand ñ$m_2$òstand for in the Law of Gravitation?

4. What does ñròstand for in the Law of Gravitation?

5. If you double the ñròterm and then square it, by how much will the force of gravity increase or decrease? Tell me if the force increases or decreases.

6. You will now calculate the force of gravity on the Earth from both the sun and the moon. **Use r^3 instead of r^2 in the denominator.** Fill in the following chart.

Body	Value of G?	Mass of Earth	Mass of Body	Radius from Earth (meters)	Force in Newtons?
Sun		5.97 e^{24} kg	1.99 e^{30} kg	1.50 e^{11} m	
Moon		5.97 e^{24} kg	7.35 e^{22} kg	3.91 e^{8} m	

7. After doing the calculation, why is the effect of the ocean tides so much greater from the moon than it is from the sun?

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