NAME_____

DATE_____

GRAVITATION/ROTATION
FIELD THEORY WORKSHEET

1. A 24.5 N rock is tied to a 1.7 m cord and whirled around in a circle. If the maximum tension that the cord can withstand before breaking is 175 N, calculate:

a) the maximum **tangential velocity** of the rock   ans. _____m/s

b) the rock's **centripetal acceleration**   ans._____m/s^2

2. Based on the information about the planet MARS (in your planets chart), calculate the **mass of the sun**. You are only allowed to use the information given about Mars.

ans. _____ kg

3. Saturn's mass is 95 times the Earth's mass and its radius is 10 times the Earth's radius. **How many times stronger** would the acceleration of gravity be on the surface of Saturn than on the Earth?

ans. _____

4. One of he prominent surface features of Jupiter is its giant "Red Spot" (theorized to be a massive storm system that has not changed since we have been observing it. Given the information about Jupiter in your table, calculate HOW MANY MILES ABOVE JUPITER'S SURFACE to place a Jupiter-synchronous orbit satellite in order to continually monitor this anomalie.   ans. _____

5. Calculate the gravitational equilibrium point (barycenter) between the Sun and the Earth (in MILES from the center of the Sun) when the distance between Earth and Sun is 93M mi.

ans. _____