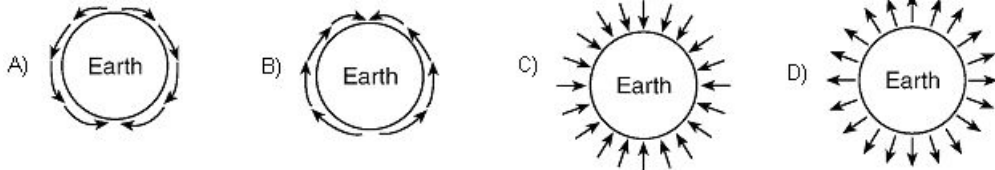


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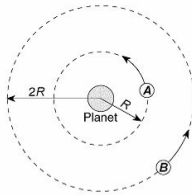
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Unit 3 WS 1
Mr. Moy

Gravitational Force

1. Which diagram best represents the gravitational field lines surrounding Earth?



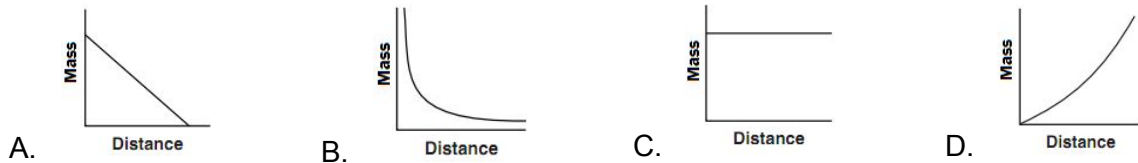
2. The diagram below represents two satellites of equal mass, A and B, in circular orbits around a planet.



Compared to the magnitude of the gravitational force between satellite A and the planet, the magnitude of the gravitational force of attraction between satellite B and the planet is

- A. 1/4th as great B. half as great C. twice as great D. 4 times as great

3. A space probe is launched into space from Earth's surface. Which graph represents the relationship between the mass of the space probe and the distance between the space probe and the center of the Earth?



4. An object weighs 100. Newtons on Earth's surface. When it is moved to a point one Earth radius above Earth's surface, it will weigh

- A. 25.0 N B. 50.0 N C. 100. N D. 400. N

5. Deimos a satellite of Mars, has an average radius of 6.3 km and a mass of $5.0 \times 10^{15} \text{ kg}$. Calculate the gravitational force applied to a rock with a mass of 8.0 kg that lies on the surface of Deimos. [Hint: Watch your units!]

6. In 1989, a cake with a mass of $5.81 \times 10^4 \text{ kg}$ was baked in Alabama. Suppose the cook stands 25.0 m from the cake. The gravitational force exerted between the cook and the cake is $5.00 \times 10^{-7} \text{ N}$. What is the cook's mass?

7. Ty Knotts weighs 930 N on planet Earth. What does Ty weigh on planet Alpha if planet Alpha has the same mass as Earth, but is three times larger?

8. Trudy Ages weighs 780 N on planet Earth. What does she weigh on planet Beta if planet Beta has the same radius as Earth, but twice the mass?