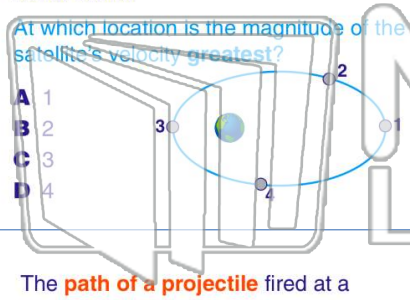
Rotational Motion/Universal Gravitation

Phys Sci

Name_____ Class_____ Date_____

1 The diagram below shows four different locations of a satellite in its elliptical orbit about Earth.



At which location is the magnitude of the satellite's velocity **greatest**?

A 1
B 2
C 3
D 4

2 Which statement is consistent with **Kepler's laws of planetary motion**?

A The planets move at a constant speed around the Sun.
B The speed of a planet is directly proportional to the radius of the path of motion.
C The more massive the planet, the slower the planet moves around the Sun.
D An imaginary line from a planet to the Sun sweeps out equal areas in equal time intervals.

3 The **path of a projectile** fired at a **30° angle** to the horizontal is best described as

4 A projectile is launched with an initial velocity of **200 meters per second** at an angle of **30°** above the horizontal. What is the **magnitude** of the **vertical component** of

7 The **acceleration due to gravity** on asteroid *X* is approximately

A 1 m/s^2
B 2 m/s^2
C 0.2 m/s^2
D 0.5 m/s^2

second. **Satellite *B*** is traveling west at 6.0 × 10^3 meters per second. The satellites collide head-on and come to rest. What is the **mass** of **satellite *B***?

A 2.7 × 10^3 kg
B 2.0 × 10^3 kg
C 1.5 × 10^3 kg
D 1.1 × 10^3 kg

9 The radius of Mars is approximately **one-half** the radius of Earth, and the mass of Mars is approximately **one-tenth** the mass of Earth. Compared to the acceleration due to gravity on the surface of Earth, the **acceleration due to gravity** on the surface of Mars is

A smaller
B larger
C the same

10 A student throws a stone **upward** at an angle of **45°**. Which statement best describes the stone at the **highest point** that it reaches?

A Its acceleration is zero.
B Its acceleration is at a maximum.
C Its potential energy is at a minimum.
D Its kinetic energy is at a minimum.

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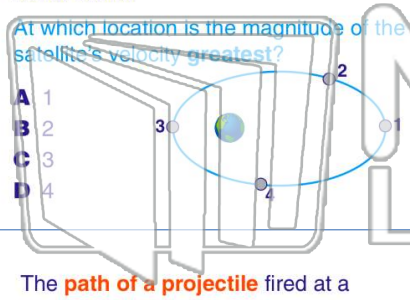

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