

Exercise B5: Modern Overview of Our Solar System

Student name: _____ Class: _____ Date: _____

Check the box with the correct answer.

Question 1: Newton's first law says that a body will remain in a state of rest, or move in a straight line at a constant speed, unless it is acted upon by an outside force. What is acting upon the Hubble Space Telescope (HST) to keep it in the curved path of its orbit around the Earth?

- a. The gravitational pull of the Sun.
- b. The gravitational pull of the Earth.
- c. Lunar tides.
- d. Atmospheric drag.

Question 2: What is the magnitude of the acceleration of the Moon towards the Earth?

- a. 3.0 m/s^2
- b. 0.003 m/s^2
- c. 30 km/s^2
- d. 3.0 km/s^2

Question 3: Astronaut James Lovell remarked in 1970, during the Apollo 13 mission crisis, that "We just put Sir Isaac Newton in the driver's seat." What did he mean by this?

- a. They had just made the final course correction and were now at the mercy of the Earth's gravitational field and Newton's gravitational law to return them safely to Earth.
- b. Since the Moon has no gravity, they were dependent upon the application of Newton's first law to put them on the correct path to the Earth.
- c. They had just reached the point where Earth's gravity was acting upon their spacecraft again after being free of this field near to the Moon.
- d. The pilot's name was Newton.