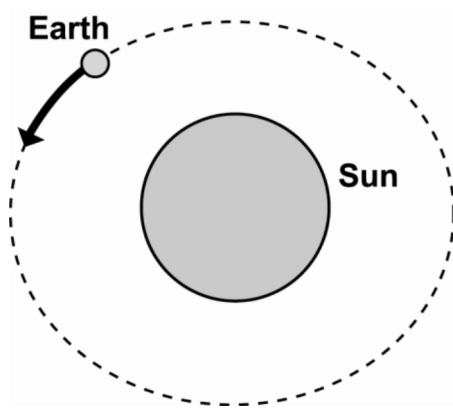


## Review Quiz on Orbital Motion

Name: \_\_\_\_\_

Date: \_\_\_\_\_

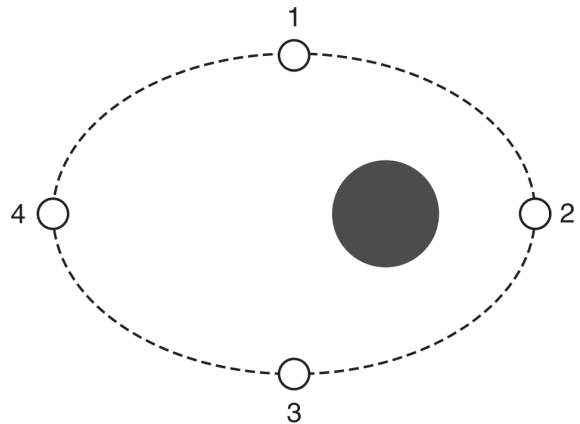
- Gravity and inertia is responsible for the
  - orbits of the planets around the Sun.
  - rotation of a planet on its axis.
  - tilt of Earth's axis.
  - phases of the Moon.
- Use this diagram to answer the question.



Which statement *best* describes the diagram?

- Earth is rotating around the Sun.
- The Sun is rotating around Earth.
- Earth is revolving around the Sun.
- The Sun is revolving around Earth.

- The diagram below shows a moon revolving around a planet in an elliptical orbit.



At which location is the planet traveling the fastest?

- location 1
  - location 2
  - location 3
  - location 4
- According to Newton's law of universal gravitation, in which of the following situations does the gravitational attraction between two bodies *always* increase?
    - The masses increase, and the distance between the centers of mass increases.
    - The masses increase, and the distance between the centers of mass decreases.
    - The masses decrease, and the distance between the centers of mass increases.
    - The masses decrease, and the distance between the centers of mass decreases.

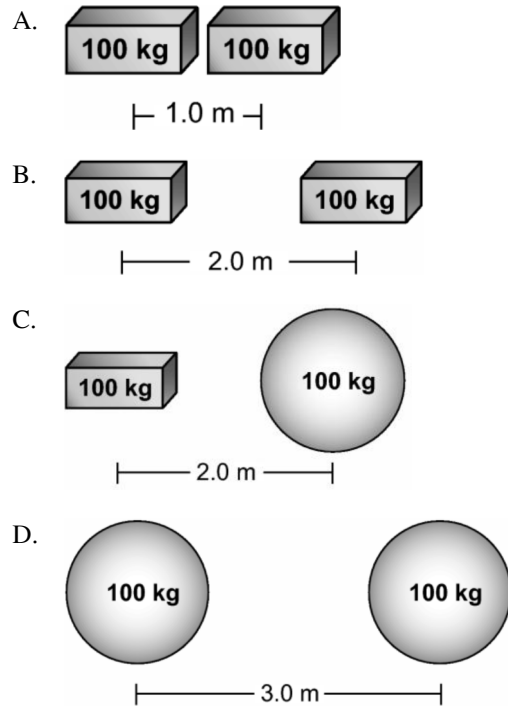
5. A student researches Jupiter and Saturn and records the following information:
- Jupiter is about half the distance to the Sun that Saturn is.
  - Jupiter is about three times more massive than Saturn.

Based on this information, which of the following can be concluded about the gravitational forces between these planets and the Sun?

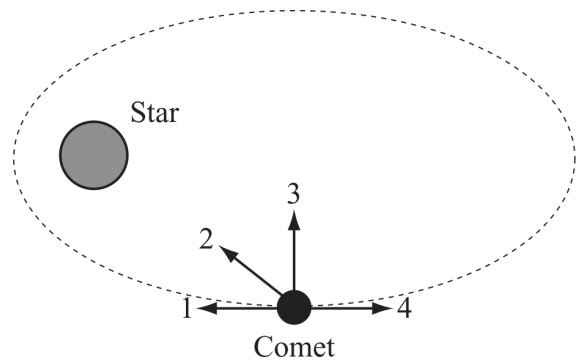
- A. There are no gravitational forces between Jupiter and the Sun or between Saturn and the Sun.
- B. There are equal gravitational forces between Saturn and the Sun and between Jupiter and the Sun.
- C. There is a greater gravitational force between Jupiter and the Sun than between Saturn and the Sun.
- D. There is a greater gravitational force between Saturn and the Sun than between Jupiter and the Sun.
6. If no additional forces are applied to an astronaut moving in space, the astronaut will
- A. continue moving in the same direction at a constant speed
- B. change direction but continue moving at a constant speed
- C. move in the same direction but at a faster speed
- D. change direction and move at a faster speed
7. Which situation is explained by Newton's Law of Inertia?
- A. A basketball bounces upward when it is dropped on the floor.
- B. You can lift more mass with the same force using a longer lever.
- C. Even though you stop pedaling your bicycle, you keep moving forward.
- D. More fuel is required to accelerate a large truck than is required to accelerate a small car.

8. A student studies gravity, using objects that have the same mass.

Which two objects have the greatest gravitational force acting between them?



9. The diagram below shows a comet in an elliptical orbit around a star.



Which arrow indicates the direction of the gravitational force the star exerts on the comet when the comet is in the position shown?

- A. 1      B. 2      C. 3      D. 4

10. The moon has a greater effect on the Earth's ocean tides than the Sun has because?
- A. the Sun has a higher density than the Moon.
  - B. the Sun has a higher temperature than the Moon.
  - C. the Moon has a greater mass than the Sun.
  - D. the Moon is closer to the Earth than the Sun.