

QUIZ #2

Answer each of the following.

- Newton found that the gravitational force between two objects
 - depends only on their masses.
 - depends on their masses and separation.**
 - depends on their chemical composition.
 - changes with time.
- The Earth has 80 times the mass of the Moon. If the gravitational force with which the Earth pulls the Moon is equal to 1, the force with which the Moon pulls the Earth is
 - 80
 - 1**
 - 1/80
 - zero.
- According to Newton's laws of motion, if something moves at constant velocity,
 - a constant force is propelling it.
 - it must be freely falling in a gravitational field.
 - no (unbalanced) force is acting on the object.**
 - its acceleration must be at right angles to its motion.
- Which of these does *not* involve acceleration?
 - bringing a car to a stop.
 - turning a vehicle around a corner.
 - a chair being pushed across the floor in a straight line at constant speed.**
 - a bucket being whirled around in a circle, held in place by a rope.
- An object in orbit 22,300 miles above the Earth's equator is in *geostationary orbit*, appearing to hang motionless over the rotating Earth. If the Earth rotated twice as fast, this orbital location would be
 - closer.**
 - at the same distance.
 - farther away.
 - nonexistent.
- The underlying cause of tides is
 - water under the Moon being more strongly attracted to it.
 - the different strength of gravity acting on solids and liquids.
 - the way the strength of gravity falls off with distance.**
 - the Earth's rotation imparting a centrifugal acceleration to water.
- We would expect stars hotter than the Sun to emit their strongest radiation in
 - red light.
 - the infrared.
 - the ultraviolet**
 - microwaves.
- Which of these does *not* involve refraction?
 - Rainbows.
 - mirages.
 - solar and lunar halos.
 - images in a mirror.**

9. To view some kinds of distant objects free of absorption by foreground dust particles, we can use

- a) visible light.
- b) the ultraviolet.
- c) radio waves.**
- d) a blue filter.

10. Which of the following can only function beyond the Earth's atmosphere?

- a) radio telescopes.
- b) neutrino detectors.
- c) X-ray telescopes.**
- d) spectrographs.