

## CH 4 & 5: NEWTON'S LAWS BOOK REVIEW

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1. If gravity between the sun and Earth suddenly vanished, Earth would continue moving in a(n)
  - a. curved path.
  - b. straight-line path.
  - c. outward spiral path.
  - d. inward spiral path.

Answer: B

2. To say that 1 kg of matter weighs 10 N is to say that 1 kg of matter
  - a. will weigh 10 N everywhere.
  - b. has ten times less volume than 10 kg of matter.
  - c. has ten times more inertia than 10 kg of matter.
  - d. is attracted to Earth with 10 N of force.

Answer: D

3. The Earth moves about 30 km/s relative to the sun. But when you jump upward in front of a wall, the wall doesn't slam into you at 30 km/s. A good explanation for why it doesn't is that
  - a. the sun's influence on you is negligible.
  - b. the air in the room is also moving.
  - c. both you and the wall are moving at the same speed, before, during, and after your jump.
  - d. the inertia of you and the wall is negligible compared with that of the sun.

Answer: C

4. A vehicle undergoes acceleration when it
  - a. gains speed.
  - b. decreases speed.
  - c. changes direction.
  - d. all of the above

Answer: D

5. An object will accelerate when
  - a. Net  $F = 0$ .
  - b. Weight changes
  - c. it is pushed or pulled with a net force.
  - d. its mass increases.

Answer: C

6. When a net force acts on an object, its acceleration depends on the object's
  - a. initial speed.
  - b. mass.
  - c. volume.
  - d. weight.

Answer: B

7. A cart is pushed and undergoes a certain acceleration. Consider how the acceleration would compare if it were pushed with twice the net force while its mass increased by four. Then its acceleration would be
  - a. one quarter.
  - b. half.
  - c. twice.
  - d. the same.

Answer: B

8. The reason a 20-kg rock falls no faster than a 10-kg rock in free fall is that
- air resistance is negligible.
  - the force of gravity on both is the same.
  - their speeds are the same.
  - the force/mass ratio is the same.

Answer: D

9. A force interaction requires at least a(n)
- single force.
  - pair of forces.
  - action force.
  - reaction force.

Answer: B

10. Whenever one object exerts a force on a second object, the second object exerts a force on the first that is
- opposite in direction and equal in magnitude at the same time.
  - in the same direction and equal in magnitude a moment later.
  - opposite in direction and greater in magnitude at the same time.
  - in the same direction and weaker in magnitude a moment later.

Answer: A

11. When you jump vertically upward, strictly speaking, you cause Earth to
- move downward.
  - also move upward with you.
  - remain stationary.
  - move sideways a bit.

Answer: A

12. At a pizza shop, the cook throws the pizza dough in the air. The amount of force the cook exerts on the dough depends on the
- mass of the dough.
  - strength of the cook.
  - weight of the dough.
  - height of the cook.

Answer: A