

**PHYSICS TEST  
8TH GRADE  
TERM 1 PART 1**

School year: 2021-2022	Date:
Name:	

I. Select the correct answer.

- In which option is there action at a distance?
  - an object falls and a car slows down
  - a magnet is brought close to a refrigerator by dragging the magnet across the floor
  - a ball rolls down a slope
  - an inflated balloon is brought close to a child's hair, which then stands on end
- A motorist is approaching a red light and must stop. What interaction takes place to produce the main force to stop the vehicle
  - brake and the wheels.
  - tires and the pavement.
  - car and the air.
  - driver and the controls.
- Based on the image, which statement is correct?



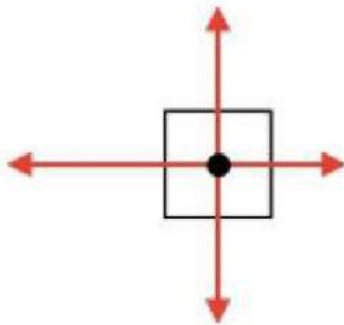
- If the car is pushed to the left, the friction is represented as a vector pointing in the same direction.
- The weight of the vehicle is represented as a vector pointing up

- C. The ground presents a force that opposes the weight of the car and is represented as a vector pointing upward.
- D. Since the car is on a horizontal surface, there is no friction when moving.
4. \_\_\_\_\_ describes the object's change of speed and direction of motion.
- A. mass
- B. acceleration
- C. velocity
- D. friction
5. A runner takes 3 one-meter strides per second. How far can they go in 15 seconds if they keep up the pace?
- A. 45 m
- B. 5 m
- C. 3 m
- D. 55 m
6. The system in the image is in equilibrium because...



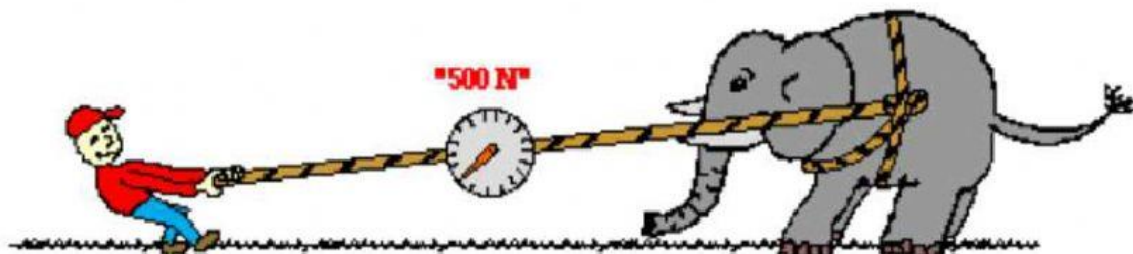
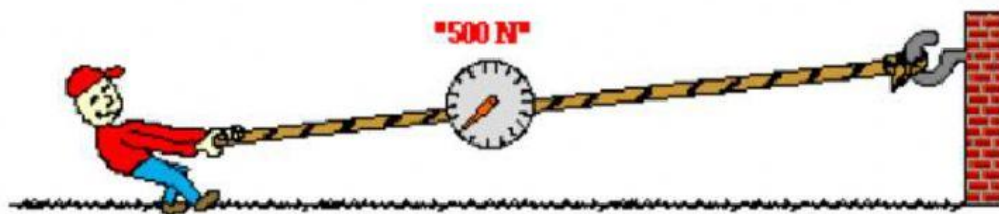
- A. the rock at the bottom exerts the same force up and down.
- B. the strength of large rocks compensates for that of small ones.
- C. the forces exerted by the two large rocks cannot break the boards.
- D. the sum of the intervening forces is equal to zero

7. Three people pull a rope to the right with forces of 85 N, 76 N, and 92 N. Four children pull to the right with forces of 23 N, 34 N, 38 N, and 42 N. Where should an extra person pull and with what force to keep the system in balance?
- A. to the left with 116 N
  - B. to the right with 116 N
  - C. to the right with 126 N
  - D. to the left with 126 N
8. Second Law: Acceleration of an object is dependent upon two variables - the net force acting upon the object and the mass of the object. The acceleration of an object depends directly upon the net force acting upon the object, and inversely upon the mass of the object. What does it mean?
- A. As the force acting upon an object is increased, the acceleration of the object is increased. As the mass of an object is increased, the acceleration of the object is increased
  - B. As the force acting upon an object is increased, the acceleration of the object is increased. As the mass of an object is increased, the acceleration of the object is decreased.
9. The diagram below represents the forces acting upon a rightward-moving object. Each arrow represents a force; the length of the arrow represents the strength of the force. Is the object speeding up, slowing down, or constant motion?



- A. Speeding up and forces are balanced
- B. Constant speed and forces are unbalanced
- C. Slowing down and forces are unbalanced

- D. Slowing down and forces are balanced
10. A net force of 25 N is exerted on a crate with apples from Arteaga to cause it to accelerate at a rate of  $8 \text{ m/s}^2$ . Determine the mass of the crate? Disregard friction.
- A. 200 kg of apples
- B. 3.5 kg of grapes
- C. 3.125 kg of apples
- D. 35 kg of apples
11. Determine the accelerations that result when a 15-N net force is applied to a 3-kg object and then to a 6-kg object.
- A.  $10 \text{ m/s}^2$  and then  $5 \text{ m/s}^2$
- B.  $5 \text{ m/s}^2$  and then  $2.5 \text{ m/s}^2$
- C.  $0.2 \text{ m/s}^2$  and then  $0.4 \text{ m/s}^2$
- D.  $45 \text{ m/s}^2$  and then  $90 \text{ m/s}^2$
12. In the top picture (below), Kent Budgett is pulling upon a rope that is attached to a wall. In the bottom picture, Kent is pulling upon a rope that is attached to an elephant. In each case, the force scale reads 500 Newton. Kent is pulling ...



- A. with more force when the rope is attached to the wall.



- B. with more force when the rope is attached to the elephant.
- C. the same force in each case.

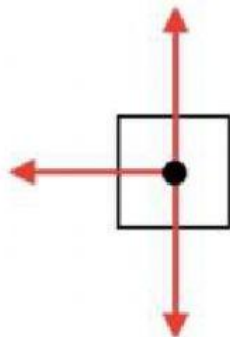
13. The previous image represented which law of Newton?

- A. First Law: An object at rest stays at rest and an object in motion stays in motion with the same speed and in the same direction unless acted upon by an unbalanced force.
- B. Second Law: Acceleration of an object is dependent upon two variables - the net force acting upon the object and the mass of the object. The acceleration of an object depends directly upon the net force acting upon the object, and inversely upon the mass of the object.
- C. Third Law: For every action, there is an equal and opposite reaction.

14. Gravity ( $9.8 \text{ m/s}^2$  on Earth) is:

- A. a force of 9.8 N going upward that keeps all objects from going downward.
- B. an acceleration. It means to change the velocity by 9.8 m/s each second
- C. the speed of falling objects at 9.8 m/s in Earth

15. The diagram below represents the forces acting upon a leftward-moving object. Each arrow represents a force; the length of the arrow represents the strength of the force. Is the object speeding up, slowing down, or constant motion?



- D. Speeding up and forces are unbalanced
- E. Constant speed and forces are unbalanced
- F. Slowing down and forces are unbalanced
- G. Slowing down and forces are balanced

II. Select the correct answer.

1. A rightward force is applied to a dresser to accelerate it to the right across the bedroom floor. Ignore the air resistance.

RIGHTWARD FORCE:

None	Applied
Gravity	Air Resistance
Normal	Spring
Friction	Tension

LEFTWARD FORCE:

None	Applied
Gravity	Air Resistance
Normal	Spring
Friction	Tension

DOWNWARD FORCE:

None	Applied
Gravity	Air Resistance
Normal	Spring
Friction	Tension

UPWARD FORCE:

None	Applied
Gravity	Air Resistance
Normal	Spring
Friction	Tension

Which force is greater?