**Force & Motion TCAP Review Questions**

1. **A high-speed train traveled at a rate of 120 kilometers per hour for 10 hours.**

Distance**(***d***)=**Rate**(***r***)×**Time**(***t***) What distance did the train travel?**

**A** 12 kilometers

**B** 20 kilometers

**C** 110 kilometers

**D** 1,200 kilometers

1. **A student throws a ball against a wall as shown in the picture below. Which statement best explains what is happening in the picture?**

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**A.** The energy of the ball is destroyed as it strikes the wall.

**B.** The energy of the ball becomes negative as it strikes the wall.

**C.** The force from the wall on the ball is equal and opposite to the force from the ball on the wall.

**D.** The force exerted by the wall on the ball is greater than the force exerted by the ball on the wall.

**3.** **A ball traveled 35 meters at a speed of 5 meters per second. How long did it take the ball to travel the 35 meters? T= D/S**

**A.** 7 seconds

**B.** 30 seconds

**C.** 40 seconds

**D.** 175 seconds

**4.** **Object X has twice the mass of Object Y. Both objects are accelerating at the same rate. Which statement best describes the motions of Object X and Object Y?**

**A.** Object X is traveling at twice the speed as Object Y.

**B.** Object X is traveling at half the speed as Object Y.

**C.** Object X requires twice the force to accelerate at the same rate as Object Y.

**D.** Object X requires half the force to accelerate at the same rate as Object Y.

**5. A car is traveling forward at an initial velocity of 10 meters per second. The car then accelerates forward at a rate of 1/2 meter per second2 for 20 seconds. What is the final velocity of the car?**

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**A.** 10 meters per second

**B.** 20 meters per second

**C.** 25 meters per second

**D.** 30 meters per second

6. **A ball rolls 12 meters in 4 seconds. What is the average speed of the ball? S=D/T**

**A.** 3 meters/second

**B.** 8 meters/second

**C.** 16 meters/second

**D.** 48 meters/second

7. **A falling rock has an acceleration of about 10 meters/second2. If the force of gravity on the rock is 40 newtons, what is the mass of the rock? M= F/A**

**A** 0.25 kilogram

**B** 4 kilograms

**C** 50 kilograms

**D** 400 kilograms

8. **A student rode a bicycle 15 miles in 1.5 hours. What was the student’s average speed? S= D/T**

**A** 10.0 miles per hour

**B** 13.5 miles per hour

**C** 16.5 miles per hour

**D** 22.5 miles per hour

9. **Which example best describes Newton’s third law of motion?**

**A.** When a glass slid across a table, it spilled water when it stopped suddenly.

**B.** An engine used less work to move a lighter car than when it moved a heavier car.

**C.** When a passenger stepped from a boat to the shore, the boat moved away from the shore.

**D.** A bowling ball rolled in a straight path when it was thrown towards bowling pins.

10. **As the wheels of a train push down on a track, the track pushes back against the wheels. Which of Newton’s laws is used to explain these forces?**

**A** An object at rest tends to stay at rest unless acted upon by an unbalanced force.

**B** The net force of an object is equal to its mass times its acceleration.

**C** For every action, there is an equal and opposite reaction.

**D** Any two objects exert a gravitational force of attraction on each other.