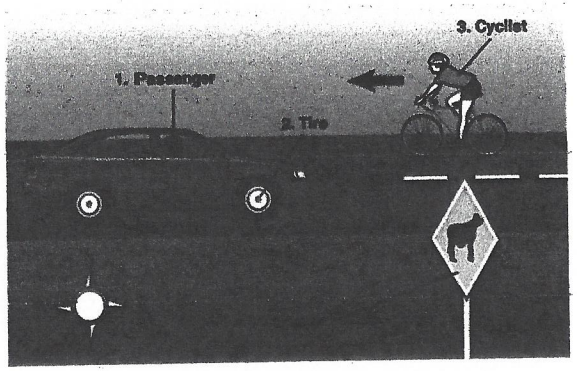
Name: _____ **7.P.1.1 Explain how the motion of an object can be desc. ed by its position, direction of motion, and speed with respect to some other object.**

1. Which is MOST likely needed when describing the change in position of an object?
   A. initial speed
   B. direction change
   C. constant rate
   D. reference point

2. The car to the right is described as traveling east at 30 km/hr.

From which reference point (#) in the diagram is the motion of the car MOST likely being described?

_____



3. Alex is writing down notes as he watches his friend Carla in a bicycle race. He makes the following notes.

Which three notes show that Carla's bicycle is in motion?

_____

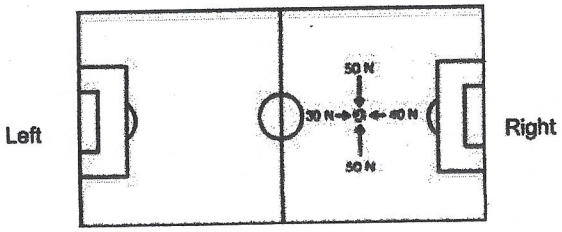
1. She is traveling northeast.
2. She is traveling at 13 miles per hour.
3. Her bicycle has nine gears.
4. She can go downhill faster than uphill.
5. She has just passed the school.

4. What is Carla's speed on her bicycle?

_____

Name: _____ **7.P.1.2 Explain the ef of balanced and unbalanced forces acting on an object (including friction, gravity and magnets).**

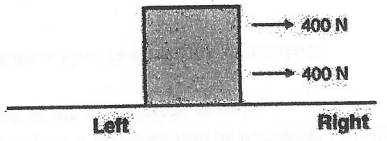
1. If the ball is at rest on the soccer field and the four forces shown are applied at the same time, the ball will



   A. move to the left.
   B. stay in the same position.
   C. move to the right
   D. accelerate in the direction of the smallest force.

2. Two forces of 400 newtons (N) each are acting on a box. Is the net force applied balanced or unbalanced?

_____



3. A student walking quickly while carrying an orange on his lunch tray stops suddenly. The orange will MOST likely roll off the tray due to
   A. inertia of the orange.
   B. centripetal force of the orange.
   C. friction acting on the orange.
   D. the balanced forces acting on the orange.

4. A student applies a 10 N force to a wood block with a mass of 5 kg. The block is pushed across four different surfaces. The accelerations of the block are recorded. Which surface showed the least friction? _____

Block Acceleration Data

Surface	Acceleration (in meters per second squared)
1	1.6
2	1.4
3	1.8
4	1.3

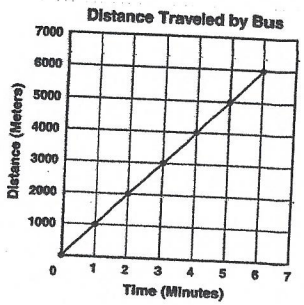
Q1 Quarterly Assessment Review

5. As a meteor falls and gets closer to Earth, it encounters a resistant air force. What other force must be greater in order for the meteor to reach Earth?

_____

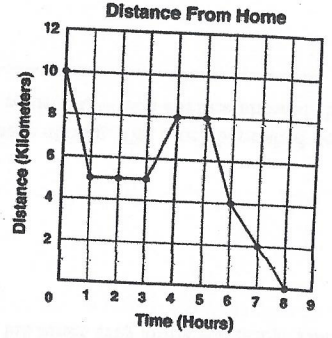
Name: _____ **7.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.**

1. This graph shows the motion of a bus. If the bus continues moving at the same speed, what is the total distance that it will have traveled in 7.5 minutes?



_____

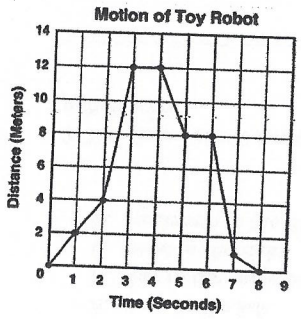
2. Alesia is taking an all-day ride on her bicycle. The graph shows how far she is from home at different times during her ride.



During which time period is Alesia moving fastest?

A. 3-4 hours
B. 4-5 hours
C. 6-7 hours
D. 0-1 hours

3. A toy robot moved from a starting point, traveling in a straight line at different speeds and then turning around and returning to the starting point at different speeds.

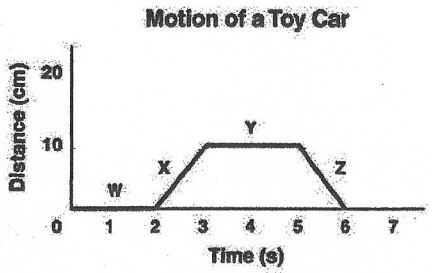


What is the total distance that the toy robot traveled?

_____

4. The motion of a toy car is shown in the graph below. In which section of the graph is the car moving away from its starting point?

A. W
B. X
C. Y
D. Z



5. The table below represents the data from an experiment to determine the speed of a toy car on a straight track. The car is moving at a constant speed in a forward direction. Which value belongs in the cell marked with an x?

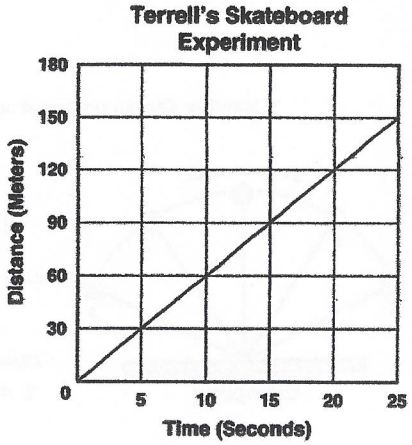
_____

Time (seconds)	Distance (centimeters)
1	50
4	200
5	250
8	x
12	600

Name: _____ **7.P.1.4 Interpret distance versus time graphs for constant speed and variable motion.**

1. Terrell decided to see how fast he could coast on his skateboard between his house and his friend Jason's house. Jason's house was 150 meters down the street from his house. Terrell and Jason marked the street with chalk in equal sections. Jason recorded the time for Terrell to complete each section of the trip. Their results are shown in the graph below. Based on the graph, what was Terrell's speed during his experiment?

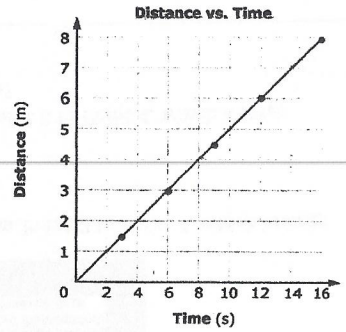
A. 5 m/s
B. 6 m/s
C. 30 m/s
D. 150 m/s



2. Sally ran a distance of 8 m in 16 s. Describe Sally's motion:

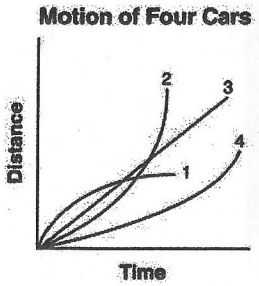
_____

_____



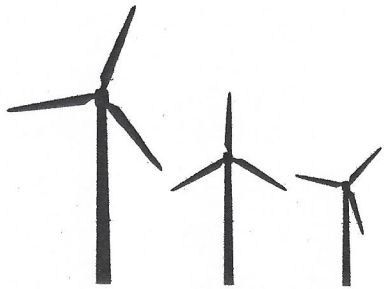
3. The graph shows the motion of four cars. All four cars are moving east. Which car has a constant velocity?

_____

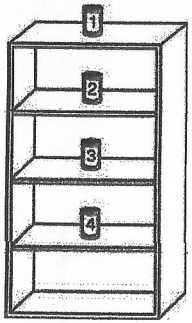


4. A wind power project has been proposed for the coastline in St. Lucie County. Windmills would be used to produce energy by converting wind energy into electricity. Electricity would be produced from which energy of the wind?

_____



5. Four identical cans are arranged on the shelves of the bookcase as shown. Which can has the greatest potential energy?

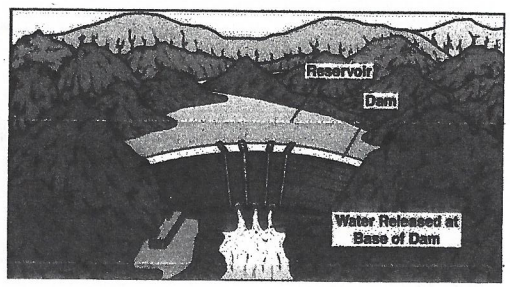


A. 1
B. 2
C. 3
D. 4

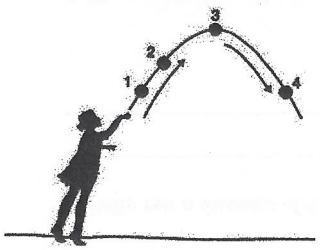
Name: _____ **7.P.2.1 Explain how kinetic and potential energy contribute to the mechanical energy of an object.**

1. Engineers are building a dam in a river valley. Once the dam is built, a reservoir will develop. Which energy transformation are engineers MOST likely attempting to achieve?

To convert _____ energy into _____ energy.



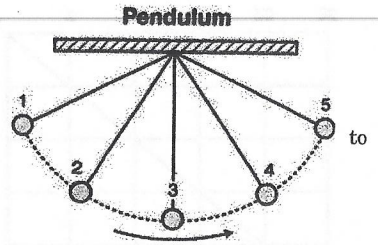
2. The line shows the path of the ball. As the ball moves from Point 3 to Point 4, which energy conversion is taking place?



As the ball moves from Point 3 to Point 4, which energy conversion is taking place?

_____ to _____

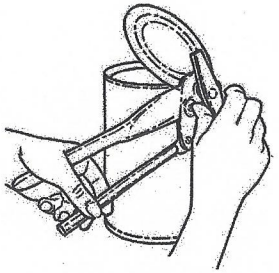
3. The pendulum shown moves from point 1 to point 5. Which statement BEST describes the change in energy during motion of the pendulum?



A. The kinetic energy at point 3 increases as it moves to point 4.
B. The potential energy at point 2 increases as it moves to point 4.
C. The kinetic energy at point 1 is equal to the potential energy at point 3.
D. The potential energy at point 1 is equal to the potential energy at point 3.

Name: _____ **7.P.2.2 Explain how energy can be transformed from one form to another (specifically potential energy and kinetic energy) using a model or diagram of a moving object (roller coaster, pendulum, or cars on ramps as examples).**

1. The picture shows a can opener being operated. Which form of energy is MOST likely used to open the can?



_____

2. Riding a bicycle produces several forms of energy. Which form of energy is produced in the greatest amount by pedaling a bicycle down the sidewalk?

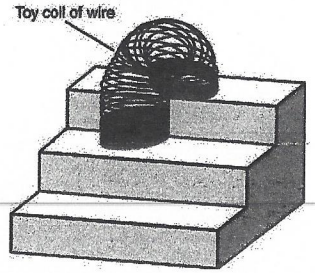
A. Chemical
B. Radiant
C. Kinetic
D. Sound

3. Share a scenario where mechanical energy is being used.

_____

4. Angela has a toy made out of a coil of wire. She places the toy at the top of some stairs. The toy can travel down each step, end-over-end.

Which type of energy does the toy have when it is placed at the top of the stairs? Why?



_____

_____

_____

5. How does the energy of a roller-coaster cart change as the cart travels from the top of the roller coaster to the bottom?

The cart has _____ at the top that is transformed to

_____ as it moves to the bottom.

Name: _____ **7.P.2.3 Recognize that energy can be transferred from one system to another when two objects push or pull on each other over a distance (work) and electrical circuits require a complete loop through which an electrical current can pass.**

1. The table shows forces applied to four carts with wheels and the distance each cart traveled.

Cart	Force (N)	Mass (g)	Distance Traveled (m)
W	4	125	25
X	4	125	20
Y	6	125	10
Z	6	125	15

In which scenario was the most work done? Why?

_____

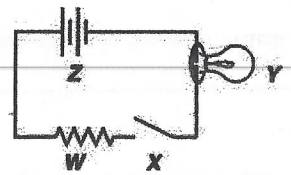
2. An electrical component that has a continuous path for electrons to flow is called

A. closed circuit.
B. an open circuit.
C. a filament.
D. a battery.

3. Look at the diagram of a simple circuit. What is the function of the part labeled *Z*?

_____

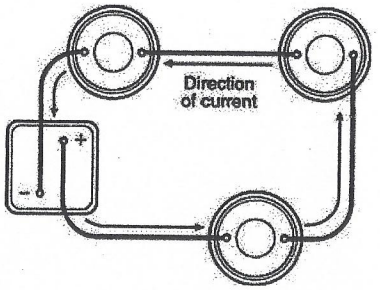
_____



4. In which situation is no work done?

A. A hockey puck slides along ice at constant speed.
B. A golfer hits a golf ball with 15,000 N of force.
C. An object hits the window of an accelerating car.
D. A basketball bounces on the ground.

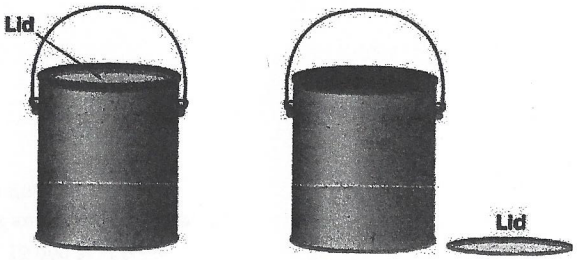
5. A student sets up this electric circuit. The student then realizes that turning off one light turns off all the lights. In order to make it possible for each light to be turned on and off separately, the student should convert the circuit into a



_____ circuit.

Name: _____ **7.P.2.4 Explain how simple machines such as inclined planes, pulleys, levers and wheel and axles are used to create mechanical advantage and increase efficiency.**

1. Tomas wants to paint his bedroom. He goes to the store and buys two cans of paint. Which simple machine would make it easier for him to open the cans?



A. Inclined plane
B. Wheel and axle
C. Pulley
D. Lever

2. A student is pushing a 20-kilogram box up a ramp. What change will require the student to use less force to push the box?

_____

3. The input and output forces for four machines are shown in the table. Which machine would have the greatest mechanical advantage? _____

Machine Forces

Machine	Input Force (N)	Output Force (N)
1	5	50
2	10	50
3	25	50
4	50	50

4. Which action involving a pulley system requires the least amount of force?

A. using several pulleys together instead of a single pulley
B. using a fixed pulley instead of a moveable pulley
C. pulling a long rope instead of a short rope
D. pulling a rope up instead of down

5. A house uses a roof to carry away large amounts of rain efficiently. A roof composed of two attached inclined planes forms what type of simple machine?

_____