

Name _____

Physical Science Review

Write answers on answer sheet.

1 Which of these best describes work input?

- a. the work done on a machine
- b. the work the machine does on an object
- c. the force you put on a machine

2 Which of these best describes work output?

- a. the work done on a machine
- b. the work the machine does on an object
- c. the force the machine puts on an object

3 Which of these best describes input force?

- a. the work you do on a machine
- b. the force you put on a machine
- c. the force the machine puts on an object

4 Which of these best describes output force?

- a. the work you do on a machine
- b. the force you put on a machine
- c. the force the machine puts on an object

5 Which best describes how a ramp makes work easier?

- a. it allows you to move the object a shorter distance using more force
- b. it makes friction between the object and the ramp which makes less work
- c. it allows you to move the object a longer distance using less force

6 (T)(F) A ramp (inclined plane) has a mechanical advantage of less than 1.

7 Which is an example of a wedge?

- a. a wheelbarrow
- b. a knife
- c. a bicycle wheel

8 When a golfer swings her club, she moves her hands and arms a shorter distance with a larger force. The club moves a larger distance, and therefore at a greater speed, with less force. What kind of machine is the club in this case?

- a. pulley
- b. screw
- c. lever
- d. wedge

9 Which two machines are related to the inclined plane?

- a. pulley and wheel and axle
- b. lever and pulley
- c. wedge and screw

10 Which machine is most closely related to the wheel and axle?

- a. inclined plane
- b. lever
- c. pulley

11 Which of these best describes mechanical efficiency?

- a. the comparison between a machine's work input and work output
- b. the comparison between a machine's input force and output force
- c. Force x Distance

- 12 When a ball is dropped from a height of 10m, what happens to its mechanical energy as it falls?
- a. it increases
 - b. it stays the same
 - c. it decreases

- 13 How does the sun generate so much thermal and light energy?
- a. Chemical reactions in the core
 - b. nuclear fusion
 - c. combustion

- 14 Which of these best describes mechanical efficiency?
- a. work output/work input
 - b. input force/output force
 - c. force x distance

- 15 Which of these best describes motion?
- a) Distance divided by time
 - b) An object's change in position
 - c) Speed and direction
 - d) Change in velocity

- 16 Which of the following is an example of relating motion to a reference point?
- a) The distance that a racecar travels compared to the time it travels
 - b) The hands of a clock compared to the numbers on the clock
 - c) The change in velocity of a train compared to time.

- 17 (T)(F) The surface of the earth is a common reference point for determining motion of objects.

- 18 Which two things work together to determine the speed of an object?
- a) Distance and time
 - b) Motion and reference point
 - c) Acceleration and velocity

19

A cyclist travels 300m in 25 sec. What is her average speed?(Show your work below)

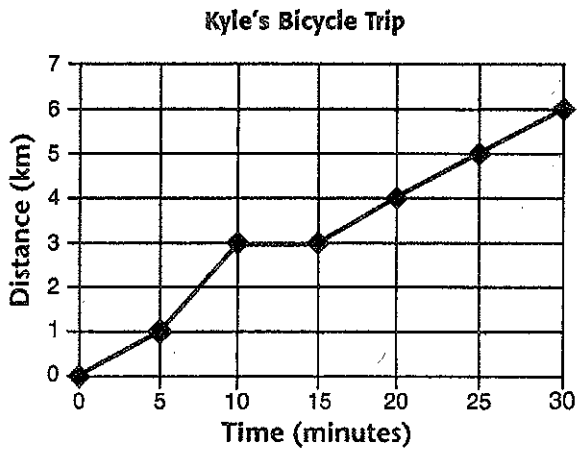
~~SHOW WORK HERE~~

Do work on Answer Sheet

20

A walker hikes 10km in 4 hrs, stops to rest for 1 hour, then walks another 3 km in 1 hour. What is the hiker's average speed over the entire trip?(Show your work below)

Use the graph below to answer the following question.



21

During which interval was Kyle's speed fastest?

- a) 0-5 min
- b) 5-10 min
- c) 10-15 min

22

What may have happened during the 10-15minute interval?

23

Which best describes instantaneous speed?

- a) Direction and speed
- b) An object's speed at a particular moment
- c) Total distance divided by total time

24 Compare and contrast speed and velocity. Be sure to use the terms scalar and vector.

25 Which best describes the difference between speed and velocity?

- a) Speed has motion while velocity does not
- b) Velocity involves acceleration while speed does not
- c) Velocity includes direction while speed does not

26 Which best describes a force?

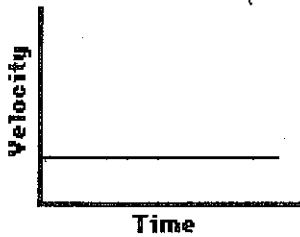
- a) A push or pull on an object
- b) Something strong
- c) Something heavy

27 Is a force scalar or vector?

28 How much work is done if a 6N box gets lifted 8m?

~~Show work~~

Use the graph below to answer the following question.



29 (Y)(N) Is this object accelerating?

30

Which of the following best describes the physics definition of energy?

- a. Power
- b. the ability to move things
- c. something you can burn

31

Which of the following objects has the least acceleration?

- a. an empty shopping cart pushed with a hard force
- b. a full shopping cart pushed with a hard force
- c. an empty shopping cart pushed with a light force
- d. a full shopping cart pushed with a light force

32

If a 10 kg bicycle and a 1000kg car are each pushed with a force of 100N, which will have greater acceleration?

- a. 10 kg bicycle
- b. 1000 kg car
- c. the two objects will accelerate the same because objects all accelerate at the same rate

33

Which two factors determine the acceleration of an object?

- a. Gravity and volume
- b. Force and mass
- c. balanced and unbalanced forces

34

According to Newton's first law, a ball that is rolled will continue to roll forever unless acted on by an unbalanced force. Why does a ball that is rolled on a flat surface come to a stop?

- a. the unbalanced force of rolling friction between the ball and the surface stops the ball
- b. the unbalanced force of gravity pulls it to a stop
- c. the ball runs out of energy from rolling so long

35

(T)(F) A motionless ball that sits on a table has no forces acting on it.

36

Which best explains why an object falling through earth's atmosphere reaches a maximum speed and then stops accelerating?

- a) The earth's gravity is only strong enough to accelerate an object up to a certain point.
- b) As a falling object's speed increases, so does air resistance, and when the force of air resistance becomes equal to the force of gravity, acceleration stops.
- c) As an object falls, friction with the atmosphere causes it to heat up and become less dense, so it doesn't weigh as much.

37

Which best explains terminal velocity?

- a) the velocity of a train as it leaves the train terminal
- b) the greatest velocity that a falling object can reach
- c) the amount of electrical current running through a battery's terminal

38

Which best explains why a feather and a cannonball will fall through the atmosphere at different speeds when dropped?

- a) the feather is lighter than the cannonball is
- b) the feather is less dense than the cannonball is
- c) the feather has more air resistance than the cannonball does

39

Which statement about terminal velocity is most accurate?

- a) an object stops accelerating at terminal velocity
- b) an object has unbalanced forces acting on it at terminal velocity
- c) air resistance decreases when an object reaches terminal velocity

40. Astronauts float freely inside the shuttle when it is in orbit. Which statement best describes the reason for this floating?

- a) they are in free fall with the shuttle
- b) there is very little gravity in orbit because they are so far from the earth
- c) there is no gravity in space

41. 25. Is free fall possible close to the earth's surface?

- a) No, because gravity is too strong there
- b) No, because air resistance balances the acceleration due to gravity
- c) Yes, because gravity accelerates all objects 9.8m/s/s

42. Which best describes the factors that affect the air resistance of a moving object?

- a) mass, density, and volume
- b) shape, size, and speed
- c) acceleration, force, and motion

43. Which best describes the motions that combine to form orbit?

- a) inertia (forward motion) and free fall
- b) terminal velocity and spinning
- c) acceleration and floating