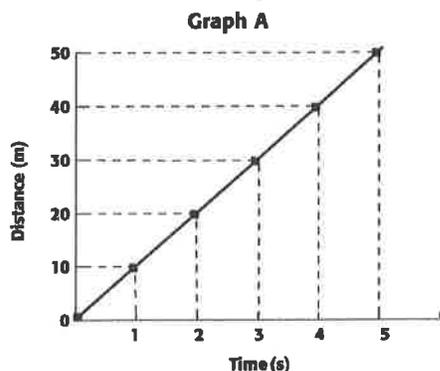


**9th Grade Physical Science PHYSICS Practice Test for Final Exam****Multiple Choice**

Identify the choice that best completes the statement or answers the question.

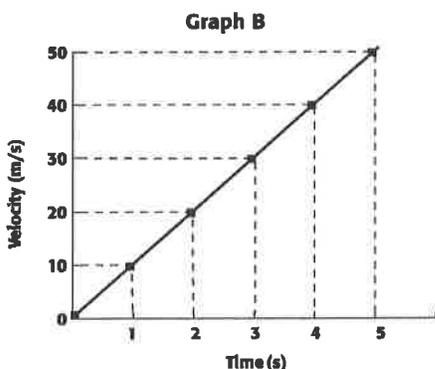
- \_\_\_\_\_ 1. Which of the following are two factors that determine speed?  
a. acceleration and time    b. velocity and time    c. distance and time    d. motion and time
- \_\_\_\_\_ 2. Which of the following explains the difference between speed and velocity?  
a. Velocity has motion, and speed does not.  
b. Velocity has direction, and speed does not.  
c. Velocity involves time, and speed does not.  
d. Velocity involves acceleration, and speed does not.
- \_\_\_\_\_ 3. Which of the following best represents acceleration as presented on a graph?  
a. motion change vs. time    c. speed change vs. time  
b. distance change vs. time    d. velocity change vs. time
- \_\_\_\_\_ 4. Which of the following choices best represents force?  
a. a push or a pull always causing motion  
b. a push or a pull always causing acceleration  
c. a push or a pull acting without an object  
d. a push or a pull acting on an object
- \_\_\_\_\_ 5. Which of the following always causes change in speed, direction, or both?  
a. balanced forces    c. either balanced or unbalanced forces  
b. unbalanced forces    d. any combination of forces
- \_\_\_\_\_ 6. What is a force that opposes motion between two surfaces that are in contact?  
a. friction    b. motion    c. velocity    d. acceleration
- \_\_\_\_\_ 7. Which is an example of friction that is helpful?  
a. car engine parts wearing out    c. holes developing in your socks  
b. tires moving a car forward    d. the erosion of soil by wind
- \_\_\_\_\_ 8. What is the net force on an object when you combine a force of 10 N north with a force of 5 N south?  
a. 5 N south    b. 15 N north    c. 50 N north    d. 5 N north
- \_\_\_\_\_ 9. Dividing the total distance traveled by the total time is how to calculate  
a. average speed.    b. average velocity.    c. average acceleration.    d. average motion.
- \_\_\_\_\_ 10. What is a way to reduce friction?  
a. Wear batting gloves to bat.    c. Push harder when cleaning.  
b. Press harder while sanding wood.    d. Wax skis before skiing down a slope.

Use the graph below to answer the following question.



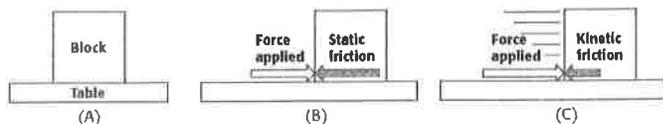
11. The graph shows distance traveled during a bicycle race. Because the upward slope on the graph is straight and objects do not normally travel at a constant rate, what does it MOST likely represent?
- average acceleration
  - actual acceleration
  - average speed
  - actual speed

Use the graph below to answer the following question.



12. This is a graph of a roller coaster car moving up a hill. What does the straight upward slope on the graph show?
- positive velocity
  - negative velocity
  - positive acceleration
  - negative acceleration
13. If a baseball and a cannonball are dropped from the same height at the same time, another is no air resistance, which ball will hit the ground first?
- The cannonball lands first.
  - The baseball lands first.
  - The balls land at the same time.
  - The ball with the larger volume lands first.
14. Which is a common unbalanced force acting on objects in motion?
- inertia
  - acceleration
  - friction
  - speed

Use the figures below to answer the following questions.



- \_\_\_ 15. Look at Figure A. Why does the block not move?
- no force applied
  - frictional force
  - surface friction
  - kinetic friction
- \_\_\_ 16. Look at Figure B. What force keeps the block in place?
- gravitational force
  - a magnetic force
  - no force applied
  - static friction
- \_\_\_ 17. Look at Figure C. The block is moving. What force acts against the movement of the block?
- static friction
  - kinetic friction
  - a magnetic force
  - gravitational force
- \_\_\_ 18. The reaction force of a chair you are sitting on
- is greater than your weight.
  - is equal to your weight.
  - is determined by many factors.
  - varies.
- \_\_\_ 19. If an action force is a cue ball hitting a billiard ball, then the reaction force is
- exerted on the table.
  - exerted on all the other billiard balls.
  - not present.
  - exerted by the billiard ball on the cue ball.
- \_\_\_ 20. Which of the following objects has the least acceleration?
- an empty shopping cart pushed with a hard force
  - a full shopping cart pushed with a hard force
  - an empty shopping cart pushed with a light force
  - a full shopping cart pushed with a light force
- \_\_\_ 21. A crumpled piece of paper hits the ground before a flat sheet of paper because
- the acceleration of gravity is greater on the crumpled paper.
  - there is more air resistance against the flat paper.
  - the crumpled paper is more massive.
  - the crumpled paper is less massive.
- \_\_\_ 22. Assuming  $1 \text{ kg} = 1,000 \text{ g}$ , a  $5 \text{ kg}$  object has less inertia than an object with the mass of
- $4 \text{ kg}$ .
  - $6,000 \text{ g}$ .
  - $2 \text{ kg}$ .
  - $1,500 \text{ g}$ .
- \_\_\_ 23. According to Newton's first law of motion, a moving object that is not acted on by an unbalanced force will
- remain in motion.
  - eventually come to a stop.
  - change its momentum.
  - accelerate.

- \_\_\_\_\_ 24. Which of the following is NOT an action/reaction force pair?
- the forces between a bat and ball
  - the attractive force between a falling ball and Earth
  - the force of propulsion and the force of gravity on an airplane
  - the forces between a grasshopper and the ground
- \_\_\_\_\_ 25. A book weighs 6.0 N. If the acceleration of gravity is  $9.8 \text{ m/s}^2$ , what is the mass of the book in kilograms?
- 6.1 kg
  - 59 kg
  - 1.6 kg
  - 0.61 kg
- \_\_\_\_\_ 26. Which of the following prevents machines from being 100% efficient?
- friction
  - input force
  - output force
  - power
- \_\_\_\_\_ 27. In which situation is a person doing work on an object?
- A school crossing guard raises a stop sign that weighs 10 N.
  - A student walks while wearing a backpack that weighs 15 N.
  - A man exerts 350 N force on a rope attached to a house.
  - A worker holds a box 1 m off the floor.
- \_\_\_\_\_ 28. If a barbell weighs 160 N, what other information do you need to calculate how much work it takes to lift it?
- the shape of the weights
  - how high the barbell is being lifted
  - the strength of the person doing the lifting
  - the amount of output force
- \_\_\_\_\_ 29. How does a ramp make lifting a heavy object easier?
- The object is moved over a shorter distance.
  - The ramp increases the amount of work you do.
  - Less force is needed to move the object over a longer distance.
  - More force is needed to move the object over a longer distance.
- \_\_\_\_\_ 30. Greg applies a force of 100 N to move a box 5 meters. How much work did he do?
- 100 J
  - 500 J
  - 5 J
  - 500 N
- \_\_\_\_\_ 31. Which of the following must happen for work to be done?
- The object must move, and there must be an output force.
  - The object must move in the opposite direction of the force.
  - The object must move in the same direction as the force.
  - The object must move, and the mechanical advantage must be greater than 1.
- \_\_\_\_\_ 32. Which of the following types of energy comes from a compound that changes as its atoms are rearranged?
- kinetic energy
  - chemical energy
  - thermal energy
  - light energy
- \_\_\_\_\_ 33. Which of the following is due to the random motion of particles?
- kinetic energy
  - nuclear energy
  - thermal energy
  - sound energy
- \_\_\_\_\_ 34. Which of the following is the energy that comes from changes in an atom's nucleus?
- thermal energy
  - light energy
  - nuclear energy
  - chemical energy
- \_\_\_\_\_ 35. When you wind a rubber band on a toy airplane, which of the following types of energy does the rubber band have?
- kinetic energy
  - elastic potential energy
  - thermal energy
  - mechanical energy



- \_\_\_\_\_ 50. Waves transfer  
a. energy and matter.      b. only energy.      c. only matter.      d. neither energy nor matter.
- \_\_\_\_\_ 51. If a wave is traveling at a certain speed and its frequency is doubled, what happens to the wavelength of that wave?  
a. The wavelength doubles.      c. The wavelength is stopped.  
b. The wavelength is halved.      d. The wavelength remains the same.
- \_\_\_\_\_ 52. When the crests of one wave overlap the crests of another wave or waves, which of the following occurs?  
a. diffraction      c. constructive interference  
b. destructive interference      d. resonant frequencies
- \_\_\_\_\_ 53. An echo is the result of a  
a. reflected sound wave.      c. refracted sound wave.  
b. diffracted sound wave.      d. dispersed sound wave.
- \_\_\_\_\_ 54. What is wavelength a measure of?  
a. height of a wave      c. temperature of a wave  
b. speed of a wave      d. distance between points on two waves
- \_\_\_\_\_ 55. The frequency of a wave is measured using which of the following units?  
a. decibel      b. hertz      c. meters per second      d. wavelength
- \_\_\_\_\_ 56. What happens to a wave when it is refracted?  
a. The wave is bent.      c. The wave is reflected.  
b. The wave is transmitted.      d. The wave is radiated.
- \_\_\_\_\_ 57. The amplitude of a sound's waves determines the sound's  
a. pitch.      b. loudness.      c. resonance.      d. sound quality.
- \_\_\_\_\_ 58. The motion of either the listener or the source of a sound causes  
a. resonance.      c. the Doppler effect.  
b. shock waves.      d. echolocation.
- \_\_\_\_\_ 59. The frequency of a sound wave determines  
a. the pitch of the sound.      c. the sound quality.  
b. the loudness of the sound.      d. the type of interference.
- \_\_\_\_\_ 60. An electromagnetic wave  
a. never moves.      c. cannot travel through matter.  
b. can travel only through empty space.      d. can travel through empty space or matter.
- \_\_\_\_\_ 61. What is the major source of energy on Earth?  
a. EM waves from the sun      b. photosynthesis      c. fossil fuels      d. plants that are used as food
- \_\_\_\_\_ 62. A transparent object that forms an image by refracting light is a  
a. concave mirror.      b. lens.      c. window.      d. convex mirror.

**9th Grade Physical Science    PHYSICS    Practice Test for Final Exam**  
**Answer Section**

**MULTIPLE CHOICE**

1. ANS: C	DIF: 1	REF: 1	OBJ: 2
2. ANS: B	DIF: 1	REF: 1	OBJ: 3
3. ANS: D	DIF: 1	REF: 1	OBJ: 5
4. ANS: D	DIF: 1	REF: 2	OBJ: 1
5. ANS: B	DIF: 1	REF: 2	OBJ: 3
6. ANS: A	DIF: 1	REF: 3	OBJ: 1
7. ANS: B	DIF: 1	REF: 3	OBJ: 3
8. ANS: D	DIF: 1	REF: 2	OBJ: 2
9. ANS: A	DIF: 1	REF: 1	OBJ: 3
10. ANS: D	DIF: 1	REF: 3	OBJ: 3
11. ANS: C	DIF: 1	REF: 1	
12. ANS: C	DIF: 3	REF: 1	OBJ: 5
13. ANS: C	DIF: 1	REF: 1	OBJ: 1
14. ANS: C	DIF: 1	REF: 2	OBJ: 2
15. ANS: A	DIF: 1	REF: 3	OBJ: 2
16. ANS: D	DIF: 1	REF: 3	OBJ: 2
17. ANS: B	DIF: 1	REF: 3	OBJ: 2
18. ANS: B	DIF: 1	REF: 2	OBJ: 3
19. ANS: D	DIF: 1	REF: 3	OBJ: 3
20. ANS: D	DIF: 1	REF: 2	OBJ: 2
21. ANS: B	DIF: 1	REF: 1	OBJ: 1
22. ANS: B	DIF: 1	REF: 2	OBJ: 1
23. ANS: A	DIF: 1	REF: 2	OBJ: 1
24. ANS: C	DIF: 1	REF: 2	OBJ: 3
25. ANS: D	DIF: 1	REF: 2	OBJ: 2
26. ANS: A	DIF: 1	REF: 2	OBJ: 4
27. ANS: A	DIF: 1	REF: 1	OBJ: 1
28. ANS: B	DIF: 1	REF: 1	OBJ: 2
29. ANS: C	DIF: 1	REF: 3	OBJ: 2
30. ANS: B	DIF: 2	REF: 1	OBJ: 2
31. ANS: C	DIF: 1	REF: 1	OBJ: 2
32. ANS: B	DIF: 1	REF: 1	OBJ: 3
33. ANS: C	DIF: 1	REF: 1	OBJ: 3
34. ANS: C	DIF: 1	REF: 1	OBJ: 3
35. ANS: B	DIF: 1	REF: 2	OBJ: 1
36. ANS: B	DIF: 1	REF: 2	OBJ: 2
37. ANS: C	DIF: 1	REF: 2	OBJ: 2
38. ANS: A	DIF: 1	REF: 3	OBJ: 1
39. ANS: C	DIF: 1	REF: 3	OBJ: 3

40.	ANS: C	DIF: 1	REF: 4	OBJ: 1
41.	ANS: A	DIF: 1	REF: 4	OBJ: 1
42.	ANS: C	DIF: 1	REF: 4	OBJ: 1
43.	ANS: B	DIF: 1	REF: 1	OBJ: 1
44.	ANS: D	DIF: 1	REF: 2	OBJ: 1
45.	ANS: C	DIF: 1	REF: 2	OBJ: 2
46.	ANS: B	DIF: 2	REF: 3	OBJ: 1
47.	ANS: B	DIF: 2	REF: 3	OBJ: 1
48.	ANS: B	DIF: 1	REF: 1	OBJ: 1
49.	ANS: D	DIF: 1	REF: 1	OBJ: 2
50.	ANS: B	DIF: 1	REF: 1	OBJ: 1
51.	ANS: B	DIF: 1	REF: 2	OBJ: 2
52.	ANS: C	DIF: 1	REF: 3	OBJ: 2
53.	ANS: A	DIF: 1	REF: 3	OBJ: 1
54.	ANS: D	DIF: 1	REF: 2	OBJ: 2
55.	ANS: B	DIF: 1	REF: 2	OBJ: 2
56.	ANS: A	DIF: 1	REF: 3	OBJ: 1
57.	ANS: B	DIF: 1	REF: 2	OBJ: 4
58.	ANS: C	DIF: 1	REF: 2	OBJ: 3
59.	ANS: A	DIF: 1	REF: 2	OBJ: 2
60.	ANS: D	DIF: 1	REF: 1	OBJ: 1
61.	ANS: A	DIF: 1	REF: 1	OBJ: 3
62.	ANS: B	DIF: 1	REF: 1	OBJ: 1