

True/False Practice:

PS Physics Semester Review

Modified True/False (49 False Statements)

Indicate whether the statement is true or false. If false, change the identified word or phrase to make the statement true.

1. Displacement includes both distance and direction. _____
2. Motion occurs when there is a change in speed. _____
3. The total distance traveled divided by the constant speed is the average speed. _____
4. The relationship $s = d/t$ can be used to calculate speed, distance or time. _____
5. Acceleration occurs when velocity changes. _____
6. If you roll a ball up a hill, it undergoes positive acceleration. _____
7. When you push on a sled and it begins to go downhill, you cause negative acceleration. _____
8. Acceleration is calculated by dividing change in speed by total time. _____
9. When the forces acting on an object are unbalanced, the net force is zero. _____
10. An object in motion at a constant velocity will change its motion only if a balanced force acts on it. _____
11. In a car crash, inertia could cause you to crash into the windshield. _____
12. The greater an object's mass, the weaker the gravitational force on it. _____
13. When a ball is dropped, it falls down due to the force of friction. _____
14. Pushing a box up a hill, you have to overcome static friction. _____
15. A box doesn't move when you push it because of static friction. _____
16. Energy in the form of motion is potential energy. _____
17. A rock at the edge of a cliff has kinetic energy because of its position. _____
18. According to the law of conservation of energy, energy can be created or destroyed. _____
19. Energy that is stored is kinetic energy. _____
20. Energy stored in food you eat is chemical potential energy. _____
21. Elastic energy is the total potential and kinetic energy in a system. _____
22. Energy is measured in joules. _____
23. A book sitting on a shelf has gravitational potential energy. _____
24. Actual mechanical advantage is determined with the equation $MA = F_r/F_e$. _____
25. Power is work done over a distance. _____

26. The longer arm of a lever with a mechanical advantage greater than 1 is the effort arm. _____
27. Friction changes the useful work of a machine into mechanical energy. _____
28. Reducing friction increases the ideal mechanical advantage of a machine. _____
29. Different household appliances use electrical energy at different rates. _____
30. A conductor is a material that doesn't allow electrons to flow through it easily. _____
31. The presence of a static electric charge can be detected by an electroscope. _____
32. A lightning bolt occurs when billions of protons are transferred at the same time. _____
33. Temperature is the same thing as heat. _____
34. Voltage difference is measured in amperes. _____
35. The unit used to measure current is the volt. _____
36. A factor that does NOT change in an experiment is the independent variable. _____
37. The unit of power is the kilowatt-hour. _____
38. Ohm's law is the tendency for a material to oppose the flow of electrons. _____
39. If a person tries to lift a heavy box for 5 seconds and can't move it, the work done on the box is zero. _____
40. Machines decrease the amount of energy that is needed to do work. _____
41. A first-class lever can have an input force greater than the output force. _____
42. A second-class lever always has an input force that is less than the output force. _____
43. Increasing the angle a ramp makes with the horizontal decreases the mechanical advantage. _____
44. Increasing the length of a ramp increases the efficiency of the ramp. _____
45. Distance is a measure of how far an object has moved. _____
46. There are 1225 centimeters in 1.225 meters. _____
47. When designing an experiment, the first step is to state the hypothesis. _____
48. If an object has energy, this means that the object has the ability to cause change. _____
49. If you double the velocity of an object, you increase its kinetic energy by a factor of two. _____
50. An object changing its speed from 10 m/s to 3 m/s is undergoing no acceleration. _____
51. As a car slows down approaching a red traffic light, its acceleration is negative. _____
52. On a swing, your potential and kinetic energies change, but your mechanical energy does not. _____
53. If the forces acting on an object at rest are equal, the object will remain at rest. _____

54. At the same speed, a bowling ball is harder to stop than a soccer ball because the bowling ball has greater velocity. _____
55. In the equation $a = (V_f - V_i)/t$, V_f stands for final velocity. _____
56. According to Newton's second law of motion, a larger force acting on an object causes a greater mass of the object. _____
57. Sliding friction is the friction between two surfaces that are not moving past each other. _____
58. Power is calculated by dividing work by time. _____
59. Horsepower is the common unit of power in rating engines. However, the official SI unit of power is the watt. _____
60. All levers have a rigid arm that turns around a point called the fulcrum. _____
61. A complex machine is defined as a machine made up of more than one simple machine. _____
62. A lever is an inclined plane wrapped around a cylinder. _____
63. When two waves meet along the same medium diffraction occurs. _____
64. According to the law of conservation of energy, energy can change, but it cannot be created or destroyed under ordinary conditions. _____
65. When you move your hand or foot, your body has converted potential energy into mechanical energy. _____
66. Doorknobs and faucet handles are examples of a simple machine called a lever. _____
67. Work, like energy, is measured in joules. _____
68. When a machine is used to perform a task, work output is always greater than work input. _____
69. The total momentum of objects before a collision equals the total momentum of the objects after a collision. _____
70. When the same amount of force is applied to two different masses, the smaller mass will be accelerated at a greater rate than the larger mass. _____
71. When the same force is applied to two different masses, these masses will have the same accelerations. _____
72. Efficiency is a measure of how much of the work put into a machine is changed to useful work put out by the machine. _____
73. Velocity describes both speed and direction. _____
74. Specific heat is the amount of heat required to raise the temperature of 1 kg of a material 1 K. _____

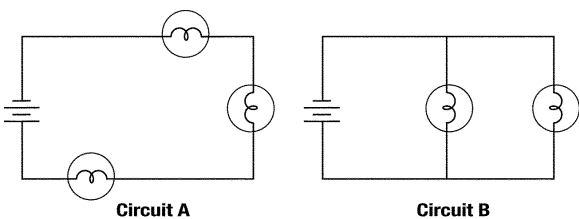


Figure 7-1

75. In Figure 7-1, circuit A is wired in series. _____
76. In Figure 7-1, circuit B is the type of circuit that causes an entire string of decorative lights to go out when one of the bulbs burns out. _____

77. Mass is a measure of the amount of matter in an object. _____
78. In transverse waves, matter in the medium moves back and forth in the same direction the wave travels. _____
79. As frequency increases, wavelength increases. _____
80. Frequency is the measure of the energy in a wave. _____
81. If a 75 W light bulb operates at a voltage of 120 V, the current in the bulb is 1.6 amps. _____
82. A car moving at a speed of 20 m/s accelerates at a rate of -4 m/s^2 to a complete stop. It would take the car 5 seconds to stop. _____
83. The force on an object that has a mass of 12 kg and accelerates at a rate of 4 m/s^2 is 48N. _____
84. The distance-time graph for a faster moving object has a steeper slope than the graph for a slower moving object. _____
85. If a cyclist moves at a constant speed of 5.1 m/s, he travels a distance of 5.1 meters every second. _____
86. The momentum of a 10-kg wagon moving at a speed of 25 m/s is 2.5-kg·m/s. _____
87. Displacement is the change in position of an object. _____
88. The measurement 82 km/h southeast is a measurement of displacement. _____
89. A 70-kg boy is sitting 3 m from the ground in a tree. His gravitational potential energy is 210 joules. _____
90. The rotating propeller of an airplane is an example of centripetal acceleration. _____
91. The reading on an electric meter was 2,345 kWh (in April), and one month later (in May) it was 3,456 kWh. The electric company charges \$0.10 per kilowatt-hour. The total cost of the electricity used for that month is \$111.10. _____
92. In the absence of air, a penny and a feather that are dropped from the same height at the same time will fall at the same rate. _____
93. Mass multiplied by velocity equals momentum. _____
94. As you get farther from the center of Earth, your weight will decrease. _____
95. The tendency of an object at rest to remain at rest, or if moving, to continue moving at a constant velocity is inertia. _____
96. An object with a small mass has more inertia than an object with a large mass. _____
97. A sound wave produced by a lightning bolt has a frequency of 36 Hz and a wavelength of 12.0 m. The speed of this sound wave is 3 m/s. _____
98. Waves that travel through matter require a medium. _____
99. The value for acceleration of objects in free fall near Earth is 9.8 m/s². _____
100. Newton's 3rd law tells us how much an object's speed will be increased or decreased by an unbalanced force. _____