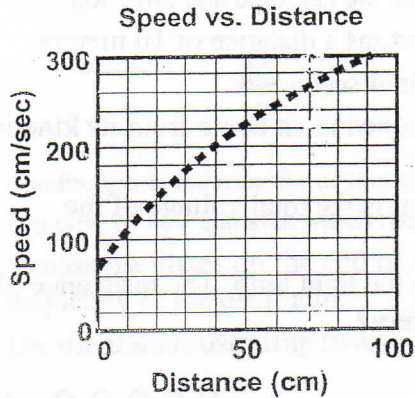


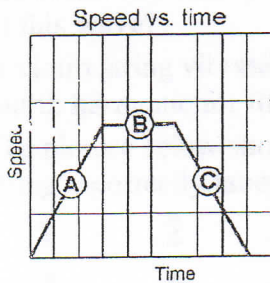
Name _____
 Block _____
 Date _____

IPC Physics Final Review

1. Use the graph to predict the speed of the car when the car is at 30 cm.



2. A car accelerates from 10 m/sec to 70 m/sec in 2 seconds. What is the acceleration of the sled?
3. In this speed vs. time graph, what is happening to the object at point A?...at point B? ... and at point C?



4. A lever rotates around a fixed point called a:
5. In .8 hr, a bicyclist traveled 16 miles. What was the bicyclist's speed?
6. A train travels 40 m/s for 2 seconds. Calculate how far it traveled.
7. You travel from Dallas (30 miles away) to Florida (600 miles away), in 9 hours. Calculate your speed.
8. A plane stops from 100 mph in 10 hours. Calculate the plane's acceleration.
9. A pulley has an input force of 2.5 Newtons and an output force of 20 Newtons. What is the mechanical advantage of the system?
10. In the absence of air, a brick and a feather that are dropped from the same height at the same time will _____.
11. The statement "to every action there is an equal and opposite reaction" is _____.

- ___ 12. A 200-N force acts on a 20-kg object. The acceleration of the object is ___.
- ___ 13. A device that does work with only one movement and does not have an engine is a(n) ___.
- ___ 14. A book rests on a table. The force of gravity pulls down on the book with a force of 20 Newtons. What prevents the book from accelerating downward at 9.8 m/sec^2 ?
- ___ 15. When the forces on an object are balanced, we say that the object:
- ___ 16. What is the momentum of a 0.25-kilogram basketball moving at 40 m/sec?
- ___ 17. The moon's gravity is 1/6th of Earth's gravity. If you were on the moon compared to the Earth, your mass will ___.
- ___ 18. 40 N is pulling to the right and friction opposes with 25 N. Find the net force and direction.
- ___ 19. Calculate the work needed to lift a block weighing 8 Newtons a distance of 10 meters.
- ___ 20. How much power is necessary to do 240 joules of work in 4 seconds?
- ___ 21. When a ball is thrown into the air, the potential energy gained must come from its kinetic energy. As the ball gains potential energy, its speed will:
- ___ 22. Six, 1.5 V alkaline AA batteries are placed in series. What is the total voltage of the batteries?
- ___ 23. In the circuit below, 3 amperes of current passes through the light bulb. The resistance of the light bulb is 1.5 ohms. What is the voltage of the battery?

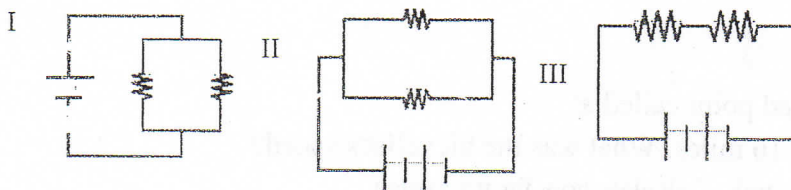
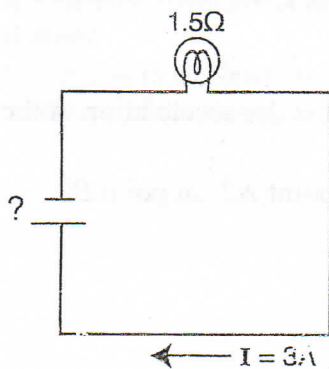
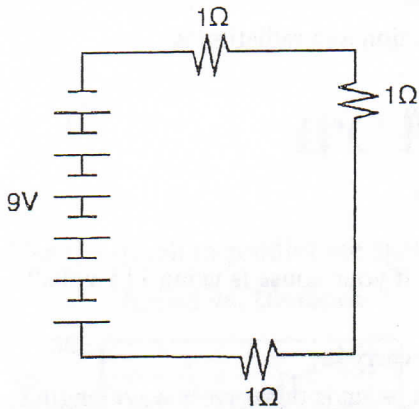


Figure 3-1A

- ___ 24. Which of the circuit diagrams shown in **Figure 3-1A** is a parallel circuit?

25. What is the current in each resistor in the circuit below?

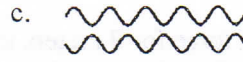


26. Conduction is the transfer of thermal energy due to:

27. The type of heat transfer which requires no matter in order for it to occur is called:

28. A mass oscillates on the end of a spring with a period of 5.0 seconds. What is the frequency of the oscillator?

29. The diagram illustrating two waves in phase (constructive interference) is:

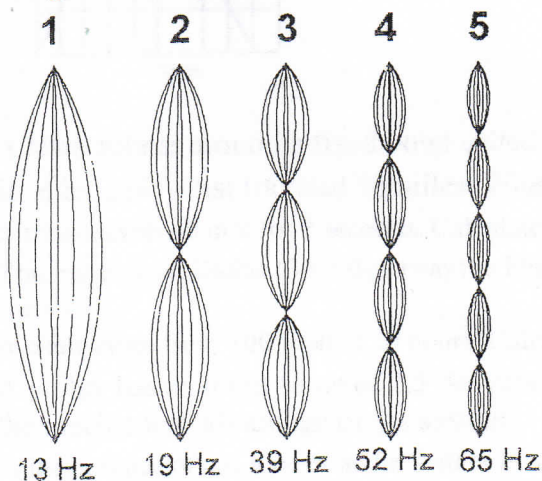


30. A transverse wave oscillates in what direction of the wave?

31. An ocean wave has a frequency of 3 Hz and a speed of 90 m/sec. What is the wavelength of this wave?

32. A violin string vibrates at a fundamental frequency of 400 Hz. The frequency of the fourth harmonic for this string is:

33. The picture below shows five harmonics of a vibrating string experiment. The vibrating string incorrectly labeled is:



- ___ 34. An atom emits light when one of its electrons moves from a high energy level to a low energy level, or a low energy level to a high energy level?
- ___ 35. A material that reduces the flow of heat by conduction, convection and radiation is
- ___ 36. Energy from the sun travels to Earth as
- ___ 37. Convection most likely occurs in what two medias or currents?
- ___ 38. Lightning is what type of energy?
- ___ 39. A 9 volt battery produces 36 amps with how much resistance?
- ___ 40. How much power is used by a 90 volt circuit using 6 amps?
- ___ 41. How much current will a 15 watt energy saving light bulb use if your house is using 115 volts?
- ___ 42. A 10 kg cart is rolling 4 m/s. Calculate its kinetic energy.
- ___ 43. A wave will travel only as long as it has _____ to carry it.
- ___ 44. A sound wave's frequency is 25 Hz and its velocity is 170 m/s, what is the wave's wavelength?
- ___ 45. If you hear a sound 5 seconds after you see the motion, how far away is it?
(speed of sound = 340 m/s)
- ___ 46. A wave has a wavelength of 6 meters and a frequency of 3 Hz. What is its speed?
- ___ 47. If 640 J of work is done in 8 seconds, how much power was used?
- ___ 48. An 8 kg owl on an 8 meter branch has how much potential energy?
- ___ 49. A 3 Newton calculator is held on a desk for 20 seconds, but it stays on the desk. How much work is done?
- ___ 50. You pull with 60 Newtons of force for 9 meters to lift a 44 Newton truck 12 meters. Find the efficiency of the pulley.

