

Honors Freshman Physics
SPRING SEMESTER FINAL EXAM REVIEW

****Know all units and symbols for calculations. Refer to study guide from EOCT.**

Periodic Table

1. Define the following terms
 - a. compound
 - b. atom
 - c. mixture
 - d. substance
 - e. isotope
 - f. atomic number
 - g. atomic mass
 - h. groups
 - i. strong nuclear force
 - j. valence electrons
 - k. periods
 - l. Ion
2. Where on the periodic table are metals located? Nonmetals? Metalloids?
3. Know the where the following groups on the periodic table are located – alkali, alkaline Earth, transition metals, halogens, and noble gases.
4. Which group on the periodic table is non-reactive? Why?
5. Elements in the same group on the periodic table have the same number of _____.
6. What does the atomic number tell you about an atom?
7. Be able to find the # of protons, neutrons and electrons using the periodic table.

Naming and Writing Formulas

1. Define the following terms.
 - a. chemical formula
 - b. subscript
 - c. Ionic Bond
 - d. Covalent Bond
 - e. anion
 - f. cation
 - g. Polyatomic ion
 - h. oxidation #
 - i. Binary compound
 - j. octet rule
2. What part of the atom is used in bonding?
3. What does the subscript in a formula tell you?
4. When writing a chemical formula the **anion/cation** always comes first?
5. When are Roman Numerals used in naming compounds?
6. Ionic bonds are formed between _____ and _____.
7. Covalent bonds are formed between _____.
8. Be sure that you know how to name compounds.
9. Be sure you know how to write formulas for compounds.
10. Why do compounds form diatomics?

Chemical Reactions

1. Define the following terms.
 - a. chemical reaction
 - b. chemical equation
 - c. reactants
 - d. products
 - e. decomposition
 - f. synthesis
 - g. single displacement
 - h. double displacement
 - i. endothermic reaction
 - j. exothermic reaction
 - k. coefficient
 - l. Law of Conservation of Mass
 - m. combustion reaction
2. Why do we balance chemical equations?
3. What is used to balance chemical equations?
4. When balancing a chemical equation can you change the subscripts on atom?
5. Be able to recognize the type of reactions.

6. Be able to balance equations.

Acids & Bases

1. Define the following terms.
 - a. acid
 - b. base
 - c. electrolyte
 - d. pH scale
 - e. pH indicator
 - f. neutralization
2. Name the properties of an acid.
3. Name the properties of a base.
4. An acid will release _____ in solution.
5. A base will release _____ in solution.
6. What substances are formed when an acid and a base are mixed.
7. What determines if a solution is a strong acid or base?
8. Be able to recognize if a substance is an acid or a base based on its formula.

Electricity & Magnetism

1. Define the following terms.
 - a. Current
 - b. Voltage difference
 - c. Circuit diagram
 - d. closed Circuit
 - e. open circuit
 - f. fuse
 - g. Electric Conductors
 - h. Electric Insulators
 - i. Resistance
 - j. Resistance
 - k. Ohm's Law
 - l. Series

Circuit

- m. Parallel Circuit
 - n. Static Electricity
 - o. Electromagnet
 - p. generator
 - q. motor
 - r. domains
 - s. Alternate Current
 - t. Direct Current
2. Electric Currents consists of moving _____.
 3. What are the units for Resistance?
 4. What is the formula to calculate Power? What is the units for power?
 5. What does a watt represent in terms of energy?
 6. When we buy electricity from the power company, we are buying _____.
 7. What happens to a circuit if one of the bulbs that makes it up is blown?
 8. Name and describe the parts to an electric motor.
 9. What is the difference between a series circuit and a parallel circuit?
 10. Be able to recognize series circuits and parallel circuit.
 11. A motor converts _____ energy to _____ energy.
 12. A generator converts _____ energy to _____ energy.
 13. What types of materials make good electrical conductors?
 14. Like charges will _____, unlike charges will _____.
 15. The source of a materials magnetism comes from ...
 16. The Earth behaves like a giant _____.
 17. What happens to the poles of an electromagnet if you reverse the flow of current?
 18. The Earth's magnetic north pole is aligned with the _____ geographic pole.
 19. What atomic particle causes both electricity and magnetism? Why?

Waves, Sound, Light & Optics

1. Define the following terms.

- | | | |
|------------------------------|------------------------|-----------------------|
| a. cycle | b. period | c. frequency |
| d. wavelength | e. Harmonic motion | f. amplitude |
| g. resonance | h. harmonics | i. diffraction |
| j. reflection | k. reflection | l. refraction |
| m. absorption | n. Specular Reflection | o. Diffuse Reflection |
| p. Total Internal Reflection | q. Convex Lens | r. Concave lens |
| s. Transverse Waves | t. longitudinal waves | u. pitch |
| v. Doppler Effect | w. reverberation/echo | x. decibal |
| y. natural frequency | z. waves | |

2. What type of wave is light?
3. What type of wave is sound?
4. How do you calculate the speed of a wave?
5. Be able to recognize relationships between frequency, wavelength, and energy in waves.
6. What is the speed of light?
7. Know how to find the frequency, wavelength and amplitude of a wave.
8. Be able to recognize examples of reflection, refraction, diffraction and absorption in a wave.
9. What is the speed of sound?
10. How are sound waves made?
11. Which type of medium do sound waves travel through the best?
12. What is the greatest speed attainable in nature?
13. Draw and label a diagram of the Electromagnetic spectrum. Include all the types of radiation, what happens to wavelength, frequency and energy throughout the spectrum.
14. What are the primary additive colors of light?
15. What are the primary subtractive colors of light?
16. Give examples of object that are translucent, transparent, and opaque.
17. In a convex lens, light rays will _____ to produce an image.
18. In a concave lens, light rays will _____ to produce an image.
19. Draw and label all the parts to a diagram showing the Law of Reflection.
20. A prism will diffract and separate light into the colors of the spectrum. Which color will defract the most?
21. What is the difference between constructive and destructive interference?
22. Be able to label all the parts of a wave.
23. Mirrors do what with light?
24. Lenses do what with light?
25. Which wave (sound or light) requires a medium to travel in?
26. Describe the properties of a virtual image and tell how it is formed.
27. Describe the properties of a real image and tell how it is formed.