

Name: _____

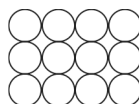
Date: _____

- Compare and contrast nuclear fission and nuclear fusion.
- Draw the bohr model for Na.
- Which is the correct formula for trinitrogen tetroxide?
- True or false
 - All elements in period 4 are metals.
 - All elements in group 17 are nonmetals.
 - Metals are found on the left side of the periodic table.
 - Metals are found on the middle of the periodic table.
- List 2 characteristics of nonmetals.
List 2 characteristics of metals.
- Which of the following is an example of nuclear fusion?
 - Hydrogen-1 and hydrogen-2 combine to form helium-3.
 - Polonium-210 decays into lead-206 and an alpha particle.
 - Carbon-14 breaks down into a beta particle and nitrogen-14.
 - Uranium-235 and a neutron produce barium-141, krypton-92, and three neutrons.
- According to the periodic table, the neutral atom of what element has 4 protons, 5 neutrons, and 4 electrons?
- Masses and Volumes
of Four Samples**

Sample	Mass (g)	Volume (mL)
A	1	2
B	2	3
C	3	6
D	3	2

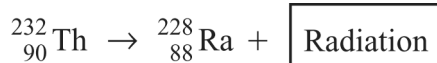
Which two samples could consist of the same substance?
- List three atoms that have six valence electrons.
- How many protons are in an atom of barium?
- A teaspoon of dry coffee crystals dissolves when mixed in a cup of hot water. This process produces a coffee solution. Identify the solute and solvent.

- A scientist uses an instrument to observe the pattern of molecules in a substance. The picture below shows what the scientist sees.



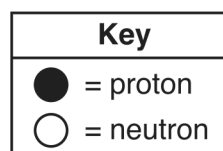
What state of matter is the scientist *most* likely observing?

- Why does potassium (K) react easily with bromine (Br)?
- The equation below shows the radioactive decay of thorium (Th).



Which of the following particles is released in this reaction?

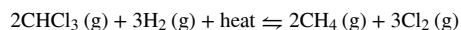
- The diagram below represents the nucleus of an atom.



What are the atomic number and mass number of this atom?

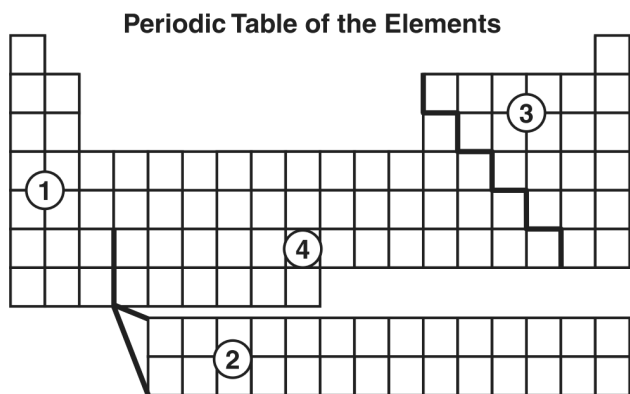
- Why are anions in a NaCl crystal attracted to cations?
- Write the equation for the alpha decay of polonium-214.
- An atom of an element contains 19 protons, 20 neutrons, and 20 electrons. This element is:
Provide an example for the other answers.
- What is the atomic number of carbon-14?
- A 2-cm-thick piece of cardboard placed over a radiation source would be *most* effective in protecting against which type of radiation? How could you protect against the other types of radiation?
- The three main types of nuclear radiation are alpha, beta, and gamma. List these types of radiation from least penetrating to highest penetrating power:
- What is a compound?
 - What is an element?
 - What is a mixture?

23. Isotopium has two naturally occurring isotopes, Isotopium-99 and Isotopium-100. The atomic mass of naturally occurring Isotopium is 99.98. Which isotope is most abundant?
24. When cations and anions join, they form what kind of chemical bond?
25. a. Which types of elements bond to form covalent compounds?
b. Which types of elements bond to form ionic compounds?
26. The equation below shows the reaction of chloroform (CHCl₃) with hydrogen (H₂) to produce methane (CH₄) and chlorine (Cl₂).

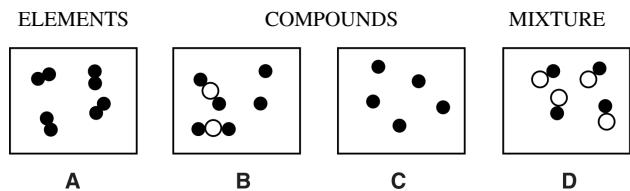


Is this an endothermic or exothermic reaction?

27. A diagram of the periodic table of the elements is shown below.
Label the type of elements found in each region: Man-made, metals, transition metals, nonmetals

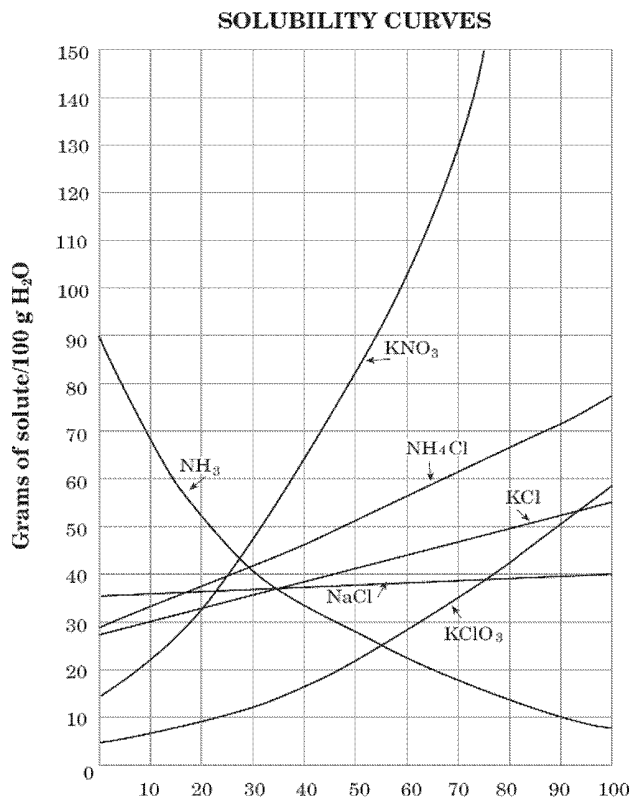


28. When copper-67 undergoes beta decay, which of the following isotopes is produced?
29. The circles and dots in the boxes below represent atoms of two different elements. Atoms touching each other are considered bonded to each other. Label each box as:



30. $1s^2 2s^2 2p^6 3s^2 3p^6 4s^1$ is the electron configuration for which element?
31. Balance the reaction:
 $\text{NH}_3(\text{g}) + \text{O}_2(\text{g}) \rightarrow \text{N}_2(\text{g}) + \text{H}_2\text{O}(\text{g})$
32. An 20 milligram sample of a radioactive isotope decays to 5 milligrams in 32 days. What is the half-life of this element?

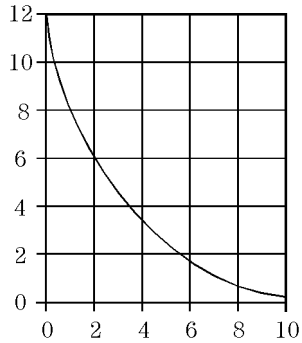
33. Describe the location of a proton, neutron and electron in an atom.
34. The following graph shows solubilities of various salts in 100. grams of water at temperatures ranging from 0°C to 100°C. Use the graph to answer the following question(s).



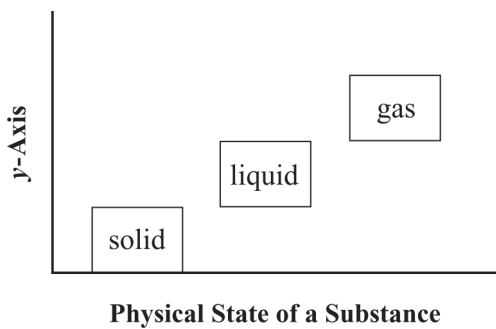
If 30.0 grams of KNO₃ were added to water at 50.0°C, what type of solution would you create?

35. Copper in the compound CuSO₄ can be isolated in the following reaction with iron.
- $$\text{Fe} + \text{CuSO}_4 \rightarrow \text{FeSO}_4 + \text{Cu}$$
- What type of reaction is shown above?
36. Based on valence electron configurations, what is a formula for a compound formed from Lithium (Li) and oxygen (O)?
37. Which distinguishes an atom of one element from an atom of a different element?
38. What happens to atomic radius as you move across the periodic table? Down a group?
39. How many protons and neutrons are there in an atom of ¹¹₅B?
40. Describe what happens to electrons during a covalent bond.
41. Why are Atomic masses usually expressed as averages?

42. The graph shown represents the decay of a radioactive isotope. What is the half-life of this isotope?



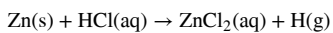
43. The graph below compares three states of a substance.



Which of the following choices is the best label for the y-axis?

- A. density B. atomic motion
 C. number of neutrons D. mass
44. In the reaction of solid zinc with hydrochloric acid (HCl), the products of hydrogen gas and aqueous zinc chloride are produced.

Balance the equation from the reaction:



Element	Protons	Electrons	Neutrons	Mass
Silver			60	103
	45			

46. Give an example of each reaction:

Synthesis:

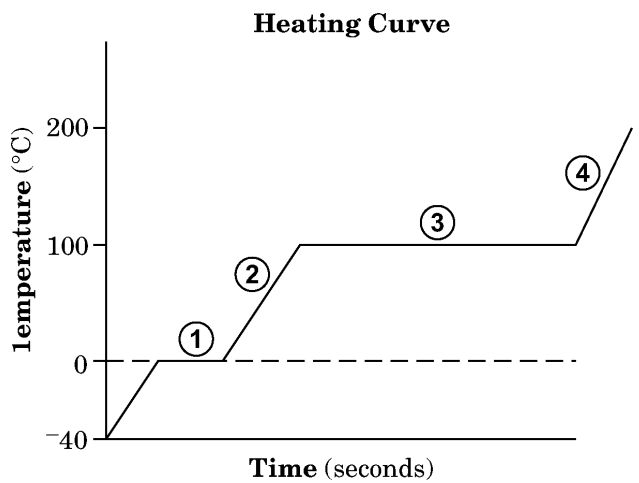
Decomposition:

Single Replacement:

Double Replacement:

47. The graph shows the temperature changes as a sample of ice is heated.

Label the graph with the following: Liquid, Gas, Solid, Melting, Freezing, Condensation, Vaporization



Review- Midterm 10/31/2016

- | | | |
|----------------|-------------------------|----------------|
| 1.
Answer: | | 21.
Answer: |
| 2.
Answer: | | 22.
Answer: |
| 3.
Answer: | | 23.
Answer: |
| 4.
Answer: | C | 24.
Answer: |
| 5.
Answer: | | 25.
Answer: |
| 6.
Answer: | A | 26.
Answer: |
| 7.
Answer: | beryllium | 27.
Answer: |
| 8.
Answer: | | 28.
Answer: |
| 9.
Answer: | | 29.
Answer: |
| 10.
Answer: | | 30.
Answer: |
| 11.
Answer: | | 31.
Answer: |
| 12.
Answer: | | 32.
Answer: |
| 13.
Answer: | | 33.
Answer: |
| 14.
Answer: | | 34.
Answer: |
| 15.
Answer: | | 35.
Answer: |
| 16.
Answer: | | 36.
Answer: |
| 17.
Answer: | | 37.
Answer: |
| 18.
Answer: | an alkaline earth metal | 38.
Answer: |
| 19.
Answer: | | 39.
Answer: |
| 20.
Answer: | | 40.
Answer: |

41.

Answer:

42.

Answer:

43.

Answer: B

44.

Answer:

45.

Answer:

46.

Answer:

47.

Answer: