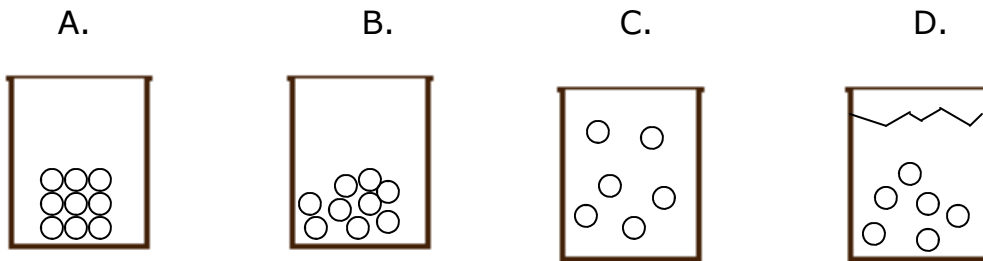


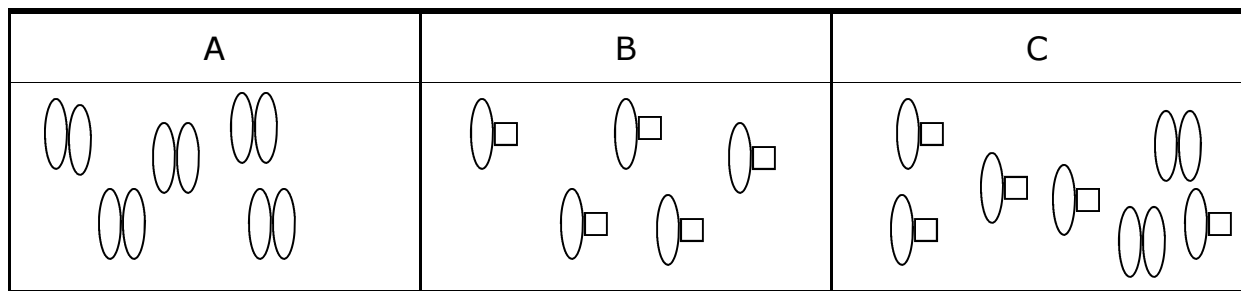
First Quarter Review

Take it like a real celebration, answers on the LAST PAGE (don't peek).

- Which substance can be decomposed by a chemical change?
A. beryllium B. boron C. sodium chloride D. magnesium
- Which diagram below represents a mixture?

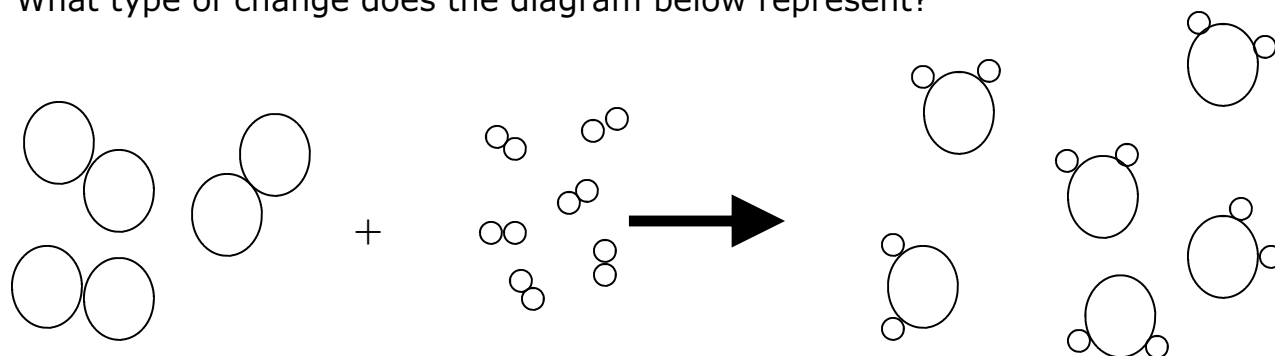


- Which diagram represents a container filled with a diatomic element?



- A sample is prepared by adding 10. grams of oxygen gas to 10. grams of nitrogen gas. No energy change is observed. Which best describes this sample?
A. a mixture that is 50% oxygen by mass
B. a compound that is 50% oxygen by mass
C. a mixture in which 50% of the atoms are oxygen
D. a compound in which 50% of the atoms are oxygen

5. What type of change does the diagram below represent?

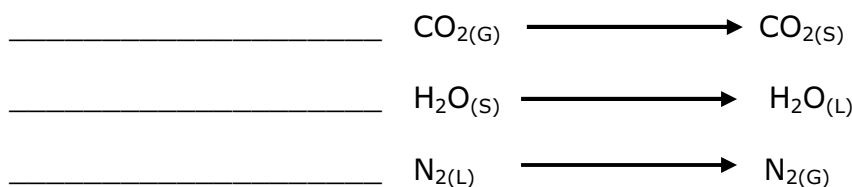


- A. physical B. chemical C. It cannot be determined from the diagram.

6. Label each as a chemical change or a physical change.

- A. A solution of silver nitrate is mixed with a solution of sodium chloride and a cloudy solution results. _____
- B. Ice on a pond melts in the spring. _____
- C. Sugar is dissolved in a cup of hot tea. _____
- D. Magnesium is burned and a white ash remains. _____
- E. Barium acetate is added to water and stirred. _____

7. Label each of these phase changes.



8. At what temperature Kelvin does the following equilibrium occur? _____

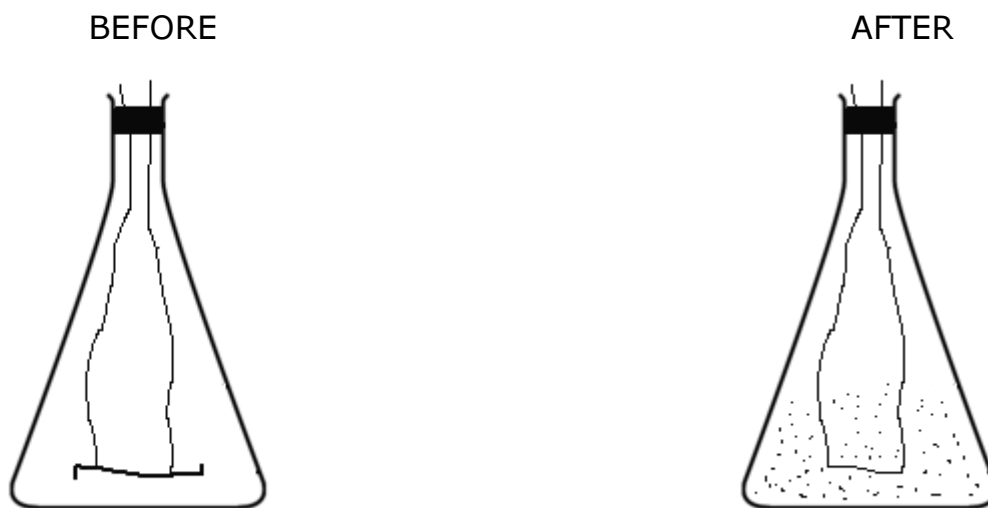


9. Which 5.0-milliliter sample of ammonia will take the shape of and completely fill a closed 100-milliliter container?

- A. $\text{NH}_{3(\text{S})}$ B. $\text{NH}_{3(\text{L})}$ C. $\text{NH}_{3(\text{G})}$ D. $\text{NH}_{3(\text{AQ})}$

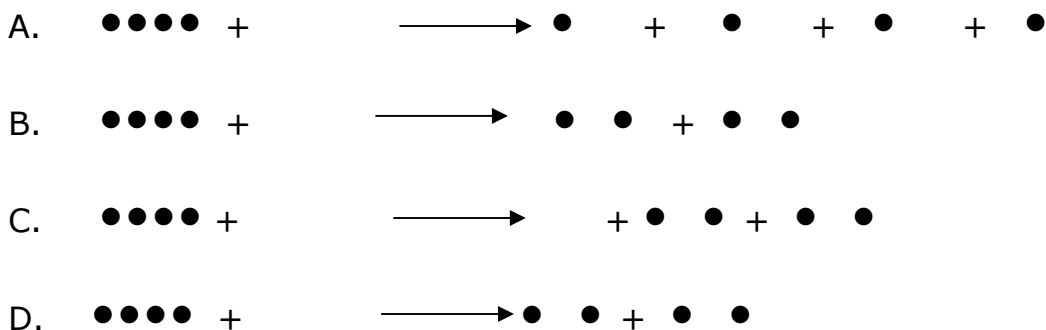
10. Which of the following could be used to separate a mixture of sand and water?
- A. distillation apparatus B. magnet
C. chromatography D. filter paper and funnel

11. Lavoisier performed a similar experiment to the one described below. A strip of magnesium metal is wrapped around a nichrome wire and placed into a flask. The flask is then closed with the ends of the wire coming out of the flask. Next, a battery is connected to the nichrome wire. This connection allows the magnesium metal to burn. After burning, the magnesium metal is gone and a white ash remains. How does the mass of the system before the burning compare to its mass after the burning?



- A. The mass before the burn is greater since everyone knows that you lose mass when you burn something.
- B. The mass after the burn is greater since there is a white ash.
- C. The mass before the burn is the same as the mass after the burn.

12. Which reaction below does NOT demonstrate the law of conservation of mass?



13. skip this one

14. How many significant figures in each of the six following?

A. 0.000960 grams

B. 487000 mL

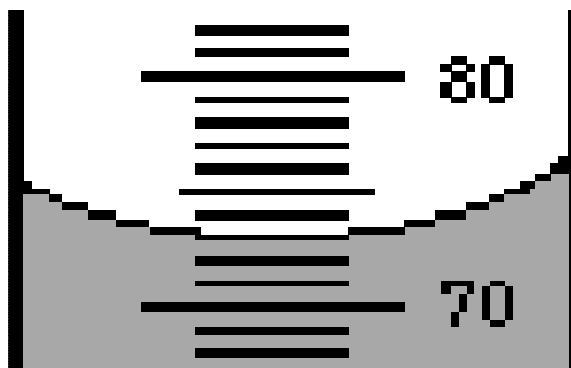
C. 20000.00 m

D. 3.08×10^8 mg

E. 24 apples

F. $1000 \text{ g} = 1 \text{ kg}$

15. What is the reading of the meniscus shown on the graduated cylinder depicted on the right if it measures in mL?



16. A student uses an electronic balance to measure the mass of a 10.00-g weight. She makes four trials and the results are 9.20 g, 9.24 g, 9.23 g, and 9.22 g. The results are:

A. both accurate and precise.

B. precise, but not accurate.

C. accurate, but not precise.

D. both accurate and precise.

17. What is the sum of 0.123 mm and 1.4 mm? _____

18. What mass would a 34.6 cm^3 block of tin have? _____

19. A student determines the density of a piece of aluminum to be 2.2 g/cm^3 . What is his percent error?

20. How many centimeters are in 1.00×10^6 kilometers?

21. Convert 1.00 inches into miles. Express your answer in scientific notation. A dimensional analysis setup would be required.
22. The modern model of the atom shows that electrons are
- orbiting the nucleus in fixed paths.
 - found in regions called orbitals.
 - combined with neutrons in the nucleus.
 - located in a solid sphere covering the nucleus.
23. All isotopes of a given atom have
- the same mass number and the same atomic number.
 - the same mass number but different atomic numbers.
 - different mass number but the same atomic number.
 - different mass number and different atomic numbers.
24. What is the most abundant isotope of the element gold?
25. An element consists of two isotopes. Isotope A has an abundance of 75.00% and a mass number of 14.00 amu. Isotope B has an abundance of 25.00% and a mass number of 15.00 amu. What is the atomic mass of the element?
26. Rutherford's famous experiment using alpha particles to bombard a thin sheet of gold foil indicated that most of the volume of the atoms in the foil is taken up by
- electrons
 - protons
 - neutrons
 - empty space
27. Which of the following Group 14 elements has the greatest metallic character?
- carbon
 - silicon
 - germanium
 - lead
28. Compared to the entire atom, the nucleus of the atom is
- smaller and contains most of the atom's mass.
 - smaller and contains little of the atom's mass.
 - larger and contains most of the atom's mass.
 - larger and contains little of the atom's mass.
29. What noble gas has the same number of electrons as the strontium ion?
30. As an atom becomes an ion, its atomic number
- increases.
 - decreases.
 - remains the same.

31. Which compound is ionic? A. NO B. NO₂ C. CaO D. CO₂

32. Write the chemical formula for each of the following.

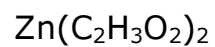
A. silver chloride

B. cobalt (III) dichromate

C. carbon tetrabromide

D. phosphorus trioxide

33. Name each of the following.



1	C
2	D
3	A
4	A
5	B
6	6A, 6D chem, 6B, 6B, 6C phys
7	deposition, melting, vaporization
8	1235 Kelvin
9	C
10	D
11	C
12	D
12+1	☺ ☺ ☺
14	3, 3, 7, 3, 2, unlimited
15	73.0 mL (3 SF)
16	B
17	1.5 mm (2 SF)
18	253 g (3 SF)
19	- 18%
20	1.00×10^{11} cm
21	1.57×10^{-5} mile

22	B
23	C
24	Au-197
25	14.25 amu
26	D
27	D
28	A
29	Kr
30	C
31	C
32	AgCl Co ₂ (Cr ₂ O ₇) ₃ CBr ₄ PO ₃
33	zinc acetate dinitrogen pentoxide nickel II permanganate chromium VI hydrogen sulfite