

Matter Homework #1

Read the MATTER BASICS. Use it to help you answer these.

1. Define

element - the simplest forms of matter that cannot be broken down to simpler substances.
All of the 118 elements are on the Periodic Table of the elements.

mixture - A physical blend of pure substances (elements or compounds). No set ratio between components of the mixture. No loss of properties by individual parts when a mixture forms.

substance - An element or compound that has definite properties that are constants. All are homogeneous.

homogeneous - the same throughout. Elements and compounds are like this, as are solutions (mixtures with solvents)

heterogeneous - not the same throughout, like a dry mixture.

matter - stuff, anything with mass and that takes up space

compound - two or more elements chemically bonded to form a new pure substance with all new properties.

2. What elements are Hg and W? Why are these symbols used and not "M" or "T"? What language are these symbols from?

M & T is a bank. Mercury is named in Greek, tungsten is named in German. Most elements are named in other languages, and have initials that do not match their Americanized names.

3. List three substances that you have experienced in at least 2 physical states. Try for at least one that you have experienced in all three states of matter.

(2 phases) iodine, chocolate, butter, eggs, Jello.

(3 phases) water

4. Fill in this table	Chemical Symbol	Is this an element, compound, or mixture?	What phase would this be at room temp. 298 K
gold	Au	element	solid
gasoline	C ₈ H ₁₈	compound	liquid
carbon dioxide	CO ₂	compound	gas
argon	Ar	element	gas
Raisin Bran cereal	x	mixture	solid
mercury	Hg	element	liquid
carbon	C	element	solid
aluminum	Al	element	solid
bromine	Br	element	liquid
iron	Fe	element	solid
salty water	NaCl _(AQ)	mixture	aqueous
sodium chloride	NaCl	compound	solid
helium	He	element	gas

Matter HW #2 Answers.

1. Determine the phase of each of these substances at 25°C	
substance formula	phase at 298 K
Co	solid
H ₂ O	liquid
Mg	solid
He	gas
Br	liquid
CO ₂	gas
Ag	solid
Xe	gas
Hg	liquid

List SYMBOLS (some have more than one correct answer)	
which of the 9 substances has...	symbols
Which has the highest BP	Cobalt at 3200 K which is 2927°C
Which are most easily compressed?	He, CO ₂ , Xe (the gases)
Which expand the most when heated?	He, CO ₂ , Xe (the gases)
Which are least likely to be compressed?	Co, H ₂ O, Mg, Br, Ag, Hg (solids and liquids)
Which might fit into the bottom of any container you put it in?	H ₂ O, Hg, Br (the liquids)
Which could fill any container you put it in?	He, CO ₂ , Xe (the gases)
Which would hold it's shape all the time?	Co, Mg, Ag (the solids)

3. How many atoms are in each of these compounds?			
H ₂ SO ₄ seven	MgSO ₃ five	Al(C ₂ H ₃ O ₂) ₃ twenty two	C ₅ H ₁₀ O ₅ twenty
CH ₄ five	C ₁₀ H ₂₂ thirty two	KCl two	NaBr two
CF ₄ five	H ₃ PO ₄ eight	NaOH three	H ₂ O three
Sn(MnO ₄) ₂ eleven	(NH ₄) ₂ Cr ₂ O ₇ nineteen	C ₆ H ₁₂ O ₆ eighteen	Ba(OH) ₂ five