

Name: _____
Date: _____

Period: **KEY!**

A.11 Supplement: Predicting Properties

Given these known compounds— CO_2 , KF , MgO , CaCl_2 , Na_2O , Ga_2O_3 , and AlCl_3 —predict the formulas for the following combinations of elements.

- Si and O $\text{SiO}_2 \sim \text{CO}_2$
- Ba and S $\text{BaS} \sim \text{MgO}$
- K and S $\text{K}_2\text{S} \sim \text{Na}_2\text{O}$
- B and F $\text{BF}_3 \sim \text{AlCl}_3$
- Li and Br $\text{LiBr} \sim \text{KF}$
- Sr and O $\text{SrO} \sim \text{MgO}$
- In and I $\text{InI}_3 \sim \text{AlCl}_3$
- Ca and F $\text{CaF}_2 \sim \text{CaCl}_2$
- Al and S $\text{Al}_2\text{S}_3 \sim \text{Ga}_2\text{O}_3$
- H and O $\text{H}_2\text{O} \sim \text{Na}_2\text{O}$

$\frac{\text{g}}{\text{cm}^3}$
He 1.785
Ne .9812
Ar 1.784
Kr > Ar.

11. Given that the density of helium (He) is 0.1785 g/cm^3 and the density of argon (Ar) is 1.784 g/cm^3 , estimate the density of neon between
 $\text{Avg} = \frac{1.784 + 0.1785}{2} = .9812 \text{ g/cm}^3$

12. Would you expect the density of krypton (Kr) to be higher or lower than that of argon (Ar)? Explain your answer.
Higher because of trend.

Ni	3003K
Pd	3200K
Pt	3560K

13. Given that the boiling point of nickel (Ni) is 3003 K and the boiling point of platinum (Pt) is 3560 K, estimate the boiling point of palladium (Pd).
avg.

Na	Mg
K	

14. Are the chemical properties of sodium more likely to be similar to potassium or magnesium? Explain.
Potassium, same group

15. Discovery of element 113 has not yet been proven or verified. Assuming its discovery is accepted some day, what would you expect the approximate atomic mass to be? Explain.

112	113	114
277	?	289

~ 284
mass #

between