

Write the symbol of the element that best completes the statement or answers the question.

Mg is the 3rd period alkaline earth metal

Xe is the 5th period noble gas

Rb is the most reactive metal in the 5th period

F is the most reactive nonmetal in the 2nd period

Ar has the smallest radius of the 3rd period

Li is the largest atom with 3 valence electrons

F is the most reactive element with 7 valence electrons

Be is the least reactive alkaline earth metal

O is the most reactive element in group 6a

Mg has 12 electrons and 12 protons

Ba has an electron configuration that ends in  $6s^2$

Mo has an electron configuration that ends in  $4d^4$

Na is the 3rd period element with lowest ionization energy

Al is the third period element which is most likely to form an ion with a +3 charge

F the most reactive nonmetal on the periodic table

H has 1 valence electrons in the 1<sup>st</sup> energy level

Mg is the alkaline earth metal with 3 energy levels

As has 5 valence electrons in the 4<sup>th</sup> energy level

F is the 2<sup>nd</sup> period atom most likely to lose an electron

Ne is the 2<sup>nd</sup> period atom least likely to react

Cl is the 3<sup>rd</sup> period element with the highest electronegativity

F is the halogen with the highest electronegativity

Fr is the element with the largest atomic radius

Ba is the alkaline earth metal with the highest ionization energy

Define and explain the trend for:

- Atomic Radius: size of atom  $\rightarrow$  dec  $\rightarrow$  due to greater nuclear attraction

due to  $\leftarrow$  inc  $\downarrow$   
 # of energy levels

- Ionization Energy  
 energy needed to remove an  $e^-$

Larger atom  $\rightarrow$  dec  $\downarrow$   $\rightarrow$  inc, smaller radius harder to remove  $e^-$   
 easier to remove  $e^-$

- Electronegativity  
 willingness to 'take' an  $e^-$  (or share)

wants to rid self  $\rightarrow$  dec  $\downarrow$   $\rightarrow$  inc - wants to take to complete octet

- Reactivity of metals and nonmetals

$\downarrow$  metals  
 Fr  $\leftarrow$

$\rightarrow$   
 F  $\uparrow$  nonmetals