**Problem 1**

a) Gas  
b) Solid  
c) Liquid  
d) Gas

**Problem 3**

a) heterogeneous  
b) Homogeneous mixture  
c) Pure Substance  
d) homogeneous mixture

**Problem 6**

Add water to the mixture. Sugar will dissolve while the sand will not. Filter the mixture to separate off the sand. Evaporate off the water to recover the sugar.

**Problem 7**

a) Al  
b) Na  
c) Fe  
d) K  
e) P  
f) Br  
g) N  
h) Hg

**Problem 9**

a) Hydrogen  
b) Magnesium  
c) Lead  
d) Silicon  
e) Fluorine  
f) Tin  
g) Copper  
h) Calcium

**Problem 13**

Physical Properties → silvery white color  
lustrous  
melting point = 649°C  
boiling point = 1105°C  
density = 1.738 g/mL  
good conductor of electricity  
can be pounded into sheets (malleable)  
can be drawn into wires (ductile)

Chemical Properties → Burns in air, gives off white light  
Reacts with Cl₂ to produce a white solid