QUICK, PAIR, SHARE TO START THE CLASS

1. A SAMPLE OF SOLID LITHIUM IS ADDED TO LIQUID WATER. A CHEMICAL REACTION OCCURS THAT PRODUCES HYDROGEN GAS AND AQUEOUS LITHIUM HYDROXIDE. IF 25.0 grams OF LITHIUM REACT, HOW MANY LITRES OF HYDROGEN GAS FORM? (AT STP)

$$2 Li (s) + 2H_2O (l) \longrightarrow H_2 (g) + 2 LiOH (aq)$$

$$25.0g \, Li \times \frac{1 mol \, Li}{6.9 \, g} \times \frac{2 \, mol \, H_2}{2 \, mol \, Li} \times \frac{22.4 \, L}{1 \, mol \, H_2} = \boxed{41 \, L \, H_2 (g)}$$

(2)

2. CHLORINE GAS IS BUBBLED INTO AN AQUEOUS SOLUTION OF POTASSIUM BROMIDE. THE REACTION PRODUCES LIQUID BROMINE AND AQUEOUS POTASSIUM CHLORIDE. IF 360 mL OF CHLORINE GAS REACTS, HOW MANY MOLECULES OF POTASSIUM CHLORIDE FORM?(AT STP)

$$Cl_2 (g) + 2KBr (aq) \longrightarrow Br_2 (l) + 2KCl (aq)$$

(2)

$$360 mL \times \frac{1\times10^{-3} L}{1 mL} \times \frac{1 \, mol \, Cl_2}{22.4 L} \times \frac{2 \, mol \, KCl}{1 \, mol \, Cl_2} \times \frac{6.02\times10^{23} \, m.c. \, KCl}{1 \, mol \, KCl} =$$

$$\boxed{1.9 \times 10^{22} \, m.c \, KCl}$$