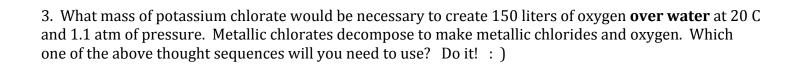
Gas Problems Set 9

	das Froblems Set 9
	will be produced if 146 grams of hydrogen chloride are mixed with nd 100 KPa? Assume the gas is collected over water.
Things to do to solve this pr	roblem:
a. Write a balanced	equation
b. Convert grams of	HCl to moles
c. Determine moles	of gas produced
	use the ideal gas law to calculate volume, so djust the lab pressure by subtracting water vapor.
e. Use the ideal gas l	aw to calculate the volume of gas produced.
2. If you want to create 650 liters need to react with excess HCl?	of dry hydrogen at 25 C and 750 mm Hg, what mass of Al would you
Things to do to solve	e this problem:
a. Write a balanced	equation
this. (you mi	nydrogen to moles. You will need to use the ideal gas equation to do ght want to use 22.4 l/mole, but the relationship is only valid at STP. It, you would need to convert the 650 liters to STP).
c. Determine moles	of Al needed
d. Convert moles of	Al to grams.

 $472\,$ g Al $\,$ (note --- this answer assumes "dry gas" so I did not subtract the water vapor pressure. If you

subtract water vapor pressure, your answer is 455 g Al).



549 grams

4. What volume of oxygen at 30 C and 780 mmHg can be produced over water from the decomposition of 250 grams of hydrogen peroxide? Hydrogen peroxide (H_2O_2) decomposes into water and oxygen. Which one of the thought sequences will you need to use?

93.3 liters

Water Vapor Pressure Table								
T	P	T	P	Т	P			
(°C)	(mmHg)	(°C)	(mmHg)	(°C	(mmHg)			
0.0	4.6	19.5	17.0	27.0	26.7			
5.0	6.5	20.0	17.5	28.0	28.3			
10.0	9.2	20.5	18.1	29.0	30.0			
12.5	10.9	21.0	18.6	30.0	31.8			
15.0	12.8	21.5	19.2	35.0	42.2			
15.5	13.2	22.0	19.8	40.0	55.3			
16.0	13.6	22.5	20.4	50.0	92.5			
16.5	14.1	23.0	21.1	60.0	149.4			
17.0	14.5	23.5	21.7	70.0	233.7			
17.5	15.0	24.0	22.4	80.0	355.1			
18.0	15.5	24.5	23.1	90.0	525.8			
18.5	16.0	25.0	23.8	95.0	633.9			
19.9	16.5	26.0	25.2	100.0	760.0			