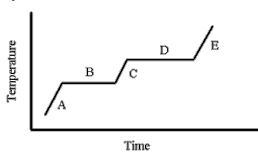


## Practice

Use the graph to answer the following questions:



1. What letter represents the melting point?
2. What letter represents the substance in the gaseous phase?
3. Write the equation for the process happening as you move from C - B -A.

May 17-10:44 AM

## Practice

Complete the chart below:

Relationship	Pressure	Volume	Temperature	# of moles
	increases	constant		constant
	increases		constant	constant
	constant		increases	constant
		constant	constant	increases

May 17-10:44 AM

## Practice

What will have to happen to the temperature of a sample of methane if 1000 mL at 98.6 kPa and 25°C is given a pressure of 108.5 kPa and a volume of 900 mL?

May 17-10:44 AM

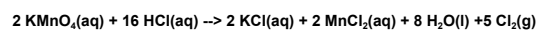
## Practice

How many moles of gas are in a 30.0 liter scuba canister if the temperature of the canister is 300.0 K and the pressure is 200.0 atmospheres?

May 17-10:45 AM

## Practice

If excess HCl is dripped onto 15.0 g of  $\text{KMnO}_4$ , what volume of  $\text{Cl}_2$  will be produced at 15°C and 0.959 atm?



May 17-10:45 AM

## Practice

How many liters does 3.75 mol of nitrogen gas occupy at STP?

May 17-10:46 AM

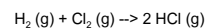
**REVIEW:**

1. A quantity of water is heated from 25.0°C to 36.4°C by absorbing 325 J of heat energy. What is the mass of the water?
2. If the total air pressure in a furnace is 0.99 atm, and the partial pressure of carbon dioxide is 0.05 atm, and the partial pressure of hydrogen sulfide is 0.02 atm, what is the partial pressure of the remaining air?

May 17-10:51 AM

**REVIEW:**

1. Estimate the amount of energy absorbed/released for the reaction below using bond energies:



H-H	436 kJ/mol	C-H	413 kJ/mol	C=C	614 kJ/mol
H-Cl	431 kJ/mol	C-C	348 kJ/mol	C≡C	839 kJ/mol
H-F	567 kJ/mol	C-N	293 kJ/mol	C=O	799 kJ/mol
N-H	391 kJ/mol	C=O	358 kJ/mol	O=O	495 kJ/mol
N-O	201 kJ/mol	C-F	485 kJ/mol	C≡O	1072 kJ/mol
O-H	463 kJ/mol	C-Cl	328 kJ/mol	C=N	615 kJ/mol
O-O	146 kJ/mol	C-S	259 kJ/mol	N=N	418 kJ/mol
F-F	155 kJ/mol	Cl-Cl	242 kJ/mol	N≡N	941 kJ/mol
				C≡N	891 kJ/mol

May 17-10:51 AM

**REVIEW:**

1. Determine if the following are exothermic or endothermic, and (if applicable) if  $\Delta H$  and  $\Delta S$ .
  - > + $\Delta H$
  - > - $\Delta H$
  - >  $\text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_2\text{O}(\text{g})$
  - >  $\text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_2\text{O}(\text{s})$
  - >  $2\text{H}_2\text{O}_2(\text{l}) \rightarrow 2\text{H}_2\text{O}(\text{l}) + \text{O}_2(\text{g}) + 200\text{kJ}$
  - >  $2 \text{N}_2\text{O}_5(\text{g}) + 110 \text{kJ} \rightarrow 4\text{NO}_2(\text{g}) + \text{O}_2(\text{g})$

May 17-10:52 AM

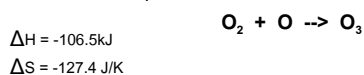
**REVIEW:**

1. Calculate the  $\Delta H_{\text{rxn}}$  for the following equation.
  - >  $\text{NaOH}(\text{s}) + \text{HCl}(\text{g}) \rightarrow \text{NaCl}(\text{s}) + \text{H}_2\text{O}(\text{g})$
2. If the standard enthalpy of formation of  $\text{H}_2\text{SO}_4(\text{l})$  is -812.2 kJ/mol, calculate the amount of energy released when 1000 g of sulfur trioxide reacts according to the equation:  $\text{SO}_3(\text{g}) + \text{H}_2\text{O}(\text{l}) \rightarrow \text{H}_2\text{SO}_4(\text{l})$

May 17-10:52 AM

**REVIEW:**

1. Calculate the free energy for this reaction at 298 K (room temperature ) and 1000K (very hot). Determine if each reaction is spontaneous.



May 17-10:52 AM