A few thoughts

- There are only a couple of key ideas
  - conservation of energy
  - binary relationships in gas systems
- Avoid “rush to judgment” which means be certain to read the question carefully and make sure you complete it. “Little things” like signs in thermodynamics or K in gases can cause great difficulty.
- Remember that all needed equations will be provided
- It is often more useful to ask “What can be done with the data provided?” than “How the heck am I supposed to solve this?”

Hess' Law

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…ons shown below to determine the enthalpy for the final reaction:

(**1**)$4PCl_5(g) \Rightarrow P_4(s) + 10Cl_2(g)$ q=1222**KJ**

(**2**)$PCl_5(g) \Rightarrow PCl_3(g) + Cl_2(g)$ q=89**KJ**

$4PCl_3(g) \Rightarrow P_4(s) + 6Cl_2(g)$ q=?

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orrect answer to appear and you will no longer be able to submit an answer for th

Use the thermochemical equations shown below to determine the enthalpy for the final reaction:

(**1**)$2CO_2(g) + 2H_2O(l) \Rightarrow CH_3COOH(l) + 2O_2(g)$ q=871**KJ**

(**2**)$CO_2(g) \Rightarrow C(graphite) + O_2(g)$ q=394**KJ**

(**3**)$2H_2O(l) \Rightarrow 2H_2(g) + O_2(g)$ q=572**KJ**

$CH_3COOH(l) \Rightarrow 2C(graphite) + 2H_2(g) + O_2(g)$ q=?

- :o… ill no longer be able to submit an ans

Use the thermochemical equations shown below to determine the enthalpy for the final reaction:

(**1**)$CO_2(g) \Rightarrow C(s) + O_2(g)$ q=236**KJ**

(**2**)$2C(s) + 3H_2(g) \Rightarrow C_2H_6(g)$ q=-51**KJ**

(**3**)$2CO_2(g) + 3H_2O(l) \Rightarrow C_2H_6(g) + 7/2O_2(g)$ q=936**KJ**

$H_2O(l) \Rightarrow H_2(g) + 1/2O_2(g)$ q=?

Dealing with Dalton

- Undoubtedly the most important aspect of Dalton's Law of partial pressures is organization, as the actual calculations themselves are not difficult.
- Consider a mixture of three gases, A,B and C. The possible dataset is:

mole	X	P	m
n_A	X_A	P_A	m_A
n_B	X_B	P_B	m_B
n_C	X_C	P_C	m_C
n_T	X_T=1	P_T	m_T

In addition, there are two equations of general value:

$P_A = X_A * P_T$ $X_A = n_A / n_T$

The real issue in this area is recognizing how a given subset of the above data can be used to solve the problem under discussion.

- A one liter mixture of three gases at STP has n_A=0.020 and P_C=190torr. Figure out everything that you can.

Graham's Law

- Key step is to always calculate the square roots of the gmws immediately and make sure that you use them.
- Make sure that you understand the how the following are actually the same statement
  - The heavier I am the slower I move
  - The heavier I am the longer it takes
- Everything here is relative
- When you have the opportunity to assign values to anything, use convenient numbers