Worksheet 2 – Work and heat

Date: _____

Person 1: _____ Person 3: _____

Person 2: _____

Heat Capacities - Which should be true for a gas:

a) $C_V > C_p$ b) $C_V < C_p$ c) $C_V = C_p$ d) depends on the gas

Why?

For an ideal gas

$PV = nRT$ $E=AnRT$ ($A=3/2$ for monotonic, $5/2$ for diatomic)

1) Draw a path for an isobaric (const P) expansion from V_1 to V_2 below. Illustrate what the work done is graphically

2) What is the change in temperature for an isobaric expansion?

3) Sketch a path for an isobaric (const P) expansion from V_1 to V_2 of an ideal gas below. Illustrate what work done is graphically

4) Is the work done more or less than if this expansion between the same two volumes was done at constant pressure?

5) Consider heat flow for this process. Which is true and *why*?
   a) dq = 0 b) dq >0 c) dq<0