SCH3AO

Absolute Zero

Name: _____

Date: _____

Can we decrease the temperature of a substance until the molecules slow down and eventually come to a complete stop?

- we know that as the temperature is decreased the motion of the particles decreases
- as the motion of the particles decreases the pressure exerted by these molecules decreases
- at what temperature will the motion equal 0 and the pressure equal 0 ?
- if we can calculate or estimate the temperature at which the pressure of the gas equals 0 then we will know absolute zero

Searching for Absolute Zero

(the coldest possible temperature where objects cannot be cooled any further)

Using the manometer, record a series of temperature and pressure readings in the table below.

Pressure Readings of a Gas at a Variety of Temperatures

Temperature (°C)	Pressure (psi)

Examining the results:

a) Plot the data collected on the graph paper provided. Plot temperature as the independent variable (x-axis) and pressure as the dependent variable (y-axis).
b) Join all points carefully using the best fit straight line.
c) Extrapolate (extend) the line back towards the x-axis until is crosses the x-axis.
d) Record, in the space provided below, the temperature value where the extended line crosses the x-axis. This is your approximate value for absolute zero.

Absolute zero = _____