Tottenville High School
Name_____ Lab#_____

Science Department
CHEM LAB_____

GRAPHING LAB 2

Base your answers to questions 64 through 67 on the table below.

Aug 05

First Ionization Energy of Selected Elements

Element	Atomic Number	First Ionization Energy (kJ/mol)
lithium	3	520
sodium	11	496
potassium	19	419
rubidium	37	403
cesium	55	376

64 On the grid *in your answer booklet*, mark an appropriate scale on the axis labeled "First Ionization Energy (kJ/mol)." An appropriate scale is one that allows a trend to be seen. [1]

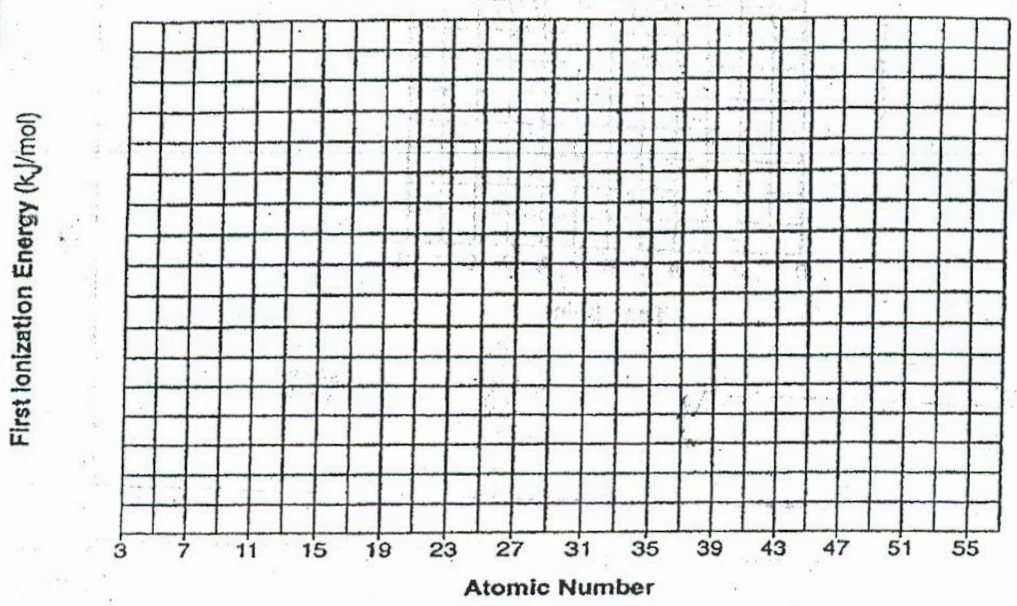
65 On the same grid, plot the data from the table. Circle and connect the points. [1]

66 State the trend in first ionization energy for the elements in the table as the atomic number increases. [1]

67 Explain, in terms of atomic structure, why cesium has a *lower* first ionization energy than rubidium. [1]

64 and 65

First Ionization Energy Versus
Atomic Number of Selected Elements



66 _____

_____

67 _____

Base your answers to questions 70 through 72 on the information below.

Jan 05

In a laboratory experiment, 10.00 grams of an unknown solid is added to 100.0 milliliters of water and the temperature of the resulting solution is measured over several minutes, as recorded in the table below.

Data Table

Time (minutes)	Temperature (°C)
0	24.0
0.5	28.5
1.0	31.0
1.5	34.5
2.0	41.0
2.5	45.5
3.0	46.5

70 On the grid provided *in your answer booklet*, mark an appropriate scale on the axis labeled "Temperature (°C)." An appropriate scale is one that allows a trend to be seen. [1]

71 Plot the data from the data table. Circle and connect the points. [1]

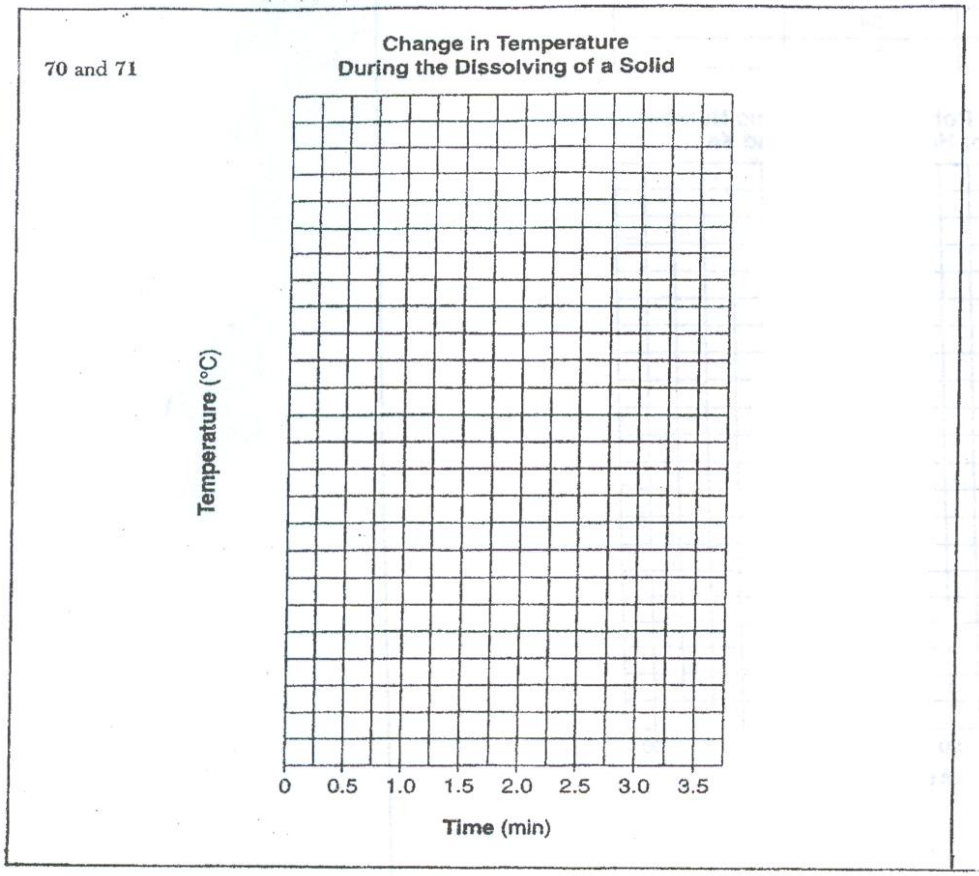
72 Given the statement:

The unknown solid is either sodium hydroxide or lithium bromide, and both of these compounds dissolve in water exothermically.

a Explain how the experimental data support the statement. [1]

b State specific information from Reference Table *I* to support the statement. [1]

70 and 71



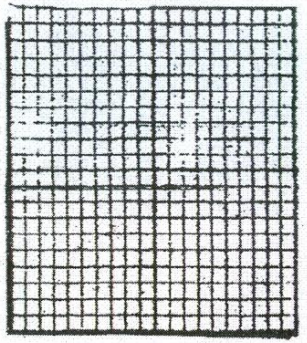
72 *a*

b

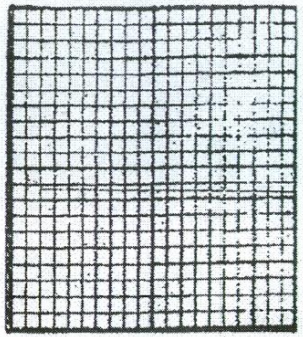
For the following graphs, just label the axes & sketch the relationships. Refer to your review notes & reference tables to complete them.

1) For an ideal gas,

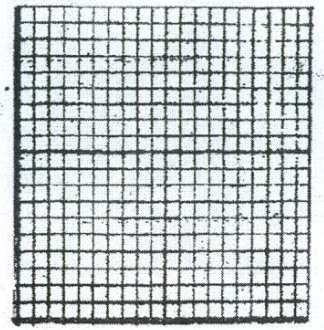
Volume vs Temperature
(at constant pressure)



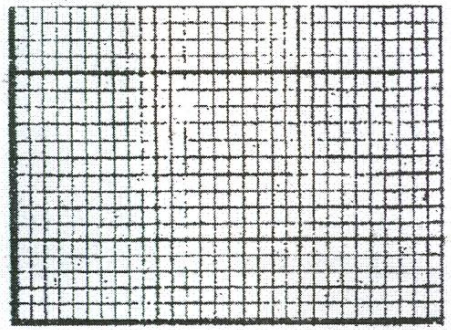
Pressure vs Temperature
(at constant volume)



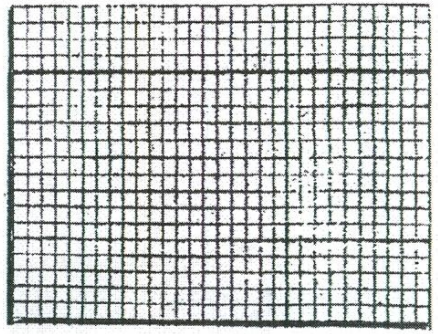
Volume vs Pressure
(at constant temperature)



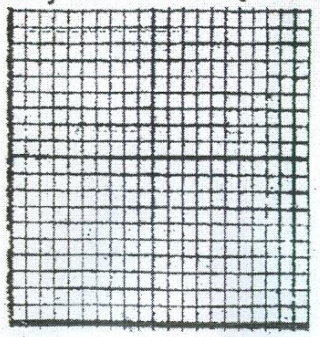
Cooling Curve of Water (Temp vs Time)



Vapor Pressure Curves of Water & Ethanoic Acid (P_{vapor} vs Temp)



Solubility Curves of KNO_3 and SO_2 (Solubility vs Temp)



Solubility Curve of O_2 (Solubility vs Pressure)