The Effect of Temperature on the Volume of a gas (Data Analysis Lab)

These sets of data come from an investigation of the relationship between the temperature of a sample of gas and its volume. The experiment was carried out at atmospheric pressure (which is assumed to remain constant at 101.3 kPa). Graph each of the following data using suitable scale.

Data Set 1:

Temperature (^{O}C)	10	18	28	42	55	70	78	90
Gas Volume (ml)	48	49	51	54	57	59	60	62

Data Set 2:

Temperature (^{O}C)	8	18	30	43	50	66	76	92
Gas Volume (ml)	48	50	52	54	55	57	59	64

Data Set 3:

Temperature (^{O}C)	13	21	31	40	56	69	77	88
Gas Volume (ml)	49	51	52	53	58	60	61	62

Data Set 4:

Temperature (^{O}C)	17	30	40	51	63	72	82	95
Gas Volume (ml)	50	52	53	54	56	57	59	64

Data Set 5:

Temperature (^{O}C)	15	26	33	45	57	70	81	94
Gas Volume (ml)	49	50	50	54	56	58	59	61

Data Set 6:

Temperature (^{O}C)	17	30	45	54	66	70	82	97
Gas Volume (ml)	50	53	55	56	67	58	59	63

Task:

1. Use your data to estimate absolute zero by extrapolating your graph. How does you value compare to the accepted value? How large is the error?
2. Use your data to determine the number of moles of gas used in the experiment.