

Gas laws

Question 1

An investigation is carried out to determine the relationship between the pressure and temperature of an enclosed gas. The following results were obtained from the investigation.

Pressure (kPa)	Temperature (°C)
100	-151
200	-29
300	93
400	X

1.1 Name the gas law being investigated

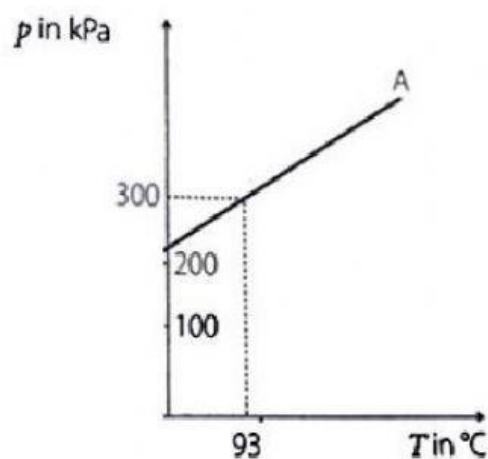
1.2 Name two variables that need to be controlled in this investigation (write answer in singular, not plural form)

_____ of gas

_____ of gas

1.3 The graph is drawn of pressure vs temperature and the graph is then extrapolated back to where it meets the x-axis.

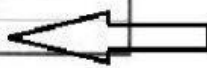
What is the value of the kelvin temperature of the gas when the pressure is zero



1.4 Calculate the value of x in the table, in Kelvin and in °C.

= K
= °C

Pressure (kPa)	Temperature (°C)
100	-151
200	-29
300	93
400	X



1.5 How will the gradient of the graph be affected if a greater mass of gas is used.

INCREASE DECREASE REMAIN THE SAME

Question 2

A gas occupies a volume of 200 dm³ at a pressure of 3kPa.

If the pressure is increased to 3,6 kPa, calculate the volume the gas will occupy

= dm³ (2 decimal places)

Question 3

0.44g of a certain gas was used to determine the relationship between the volume and the temperature of the gas.

Volume (cm ³)	Temperature (°C)	Temperature (K)
35	-73	A
70	127	B
105	327	C
140	527	D
250	X	

3.1 Name the law that is being investigated here.

3.2 Convert the first four temperatures given in the table to Kelvin temperatures.

A = K

B = K

C = K

D = K

3.3 Calculate the value of X in °C

= °C (2 decimal places)

Question 4

50g of a gas occupies a volume of 30 000dm³ at a pressure of 202,9 Pa and at a temperature of 20°C. Identify what the gas is, by using suitable calculations.

(This is a two-step calculation. Write the answer to the first step in the first block and final answer in the last blocks.)

Leave no spaces between the values and the unit

= (1 decimal place)

= (0 decimal places)

Thus the element symbol is =