Charle's Law

1787 - Jacques Charles, a French scientist, studied the relationship between temperature and the volume of a gas

Charle's Law - the volume of a fixed mass of gas at constant pressure is directly proportional to the Kelvin temperature

i.e. $V \propto T$ or $V = kT$ k is constant

If the temperature of a gas is changed, keeping the amount and pressure of the gas constant, the new volume can be calculated according to:

$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

T must be in Kelvin

e.g. A sample of gas has a volume of 100 mL at 200 K. What volume will it occupy at 150 K? (P and n of gas are constant)

e.g. A gas has a volume of 473 mL at 36 ^{o}C. If the temperature is raised to 94 ^{o}C, find the new volume. (P and n of gas are constant)