Question#21060

A gas occupies a certain volume at 27 degree celcius.If it is heated at constant pressure, its volume is exactly doubled at a temperature of ----------

Solution:

Let:

$T_1 = 27°C = 300K$

$P_2 = 2P_1$

T_2 - ?

$$\frac{P_1}{T_1} = \frac{P_2}{T_2}$$

$$T_2 = \frac{P_2 * T_1}{P_1} = 2T_1$$

$$T_2 = 2 * 300 = 600K = 327°C$$

Answer: 600K or 327 ^{0}C.