

(L54) Charles's LAW

TODAY'S
DATE

E.Q.: How can you predict the volume of a gas sample?

Charles's LAW - states that the volume of a given sample of gas is proportional to its Kelvin temp. if pressure is unchanged

$$k = \frac{V}{T}$$

proportionality constant (L/K) different for each different amt. of gas

volume (L) \swarrow

temp (K) \swarrow

OR

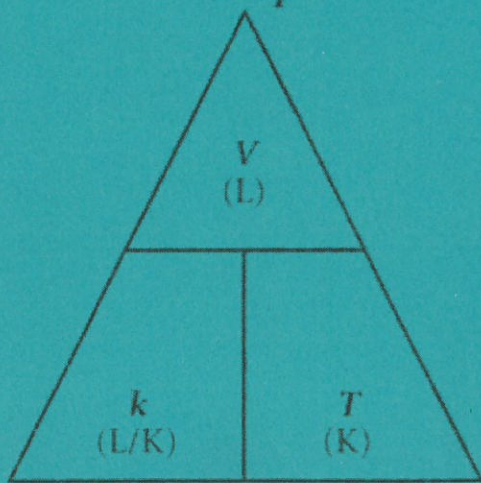
$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

CHARLES'S LAW

<p>$k = \text{Proportionality Constant}$</p> <p>$V = \text{Volume}$</p> <p>$T = \text{Temperature in Kelvin}$</p>	$k = \frac{V}{T}$ $T \times k = \frac{V}{T} \times T$ <p style="text-align: center;"><i>(multiply by T on both sides)</i></p> $T \times k = V$ <p style="text-align: center;">or</p> $V = kT$	$k = \frac{V}{T}$ $T \times k = \frac{V}{T} \times T$ <p style="text-align: center;"><i>(multiply by T on both sides)</i></p> $\frac{T \times k}{k} = \frac{V}{k}$ <p style="text-align: center;"><i>(divide by k on both sides)</i></p> $T = \frac{V}{k}$
$k = \frac{V}{T}$	$V = kT$	$T = \frac{V}{k}$

Charles's Law

$$k = \frac{V}{T}$$

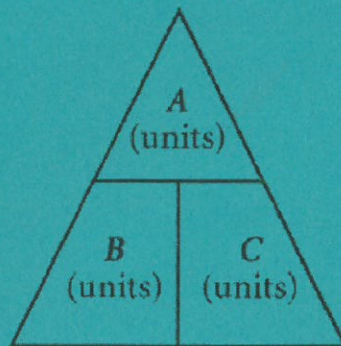


The proportionality constant, k , is different for each gas sample.

Triangle Instructions

If you are asked for A, cover up A:

$$A = (B)(C)$$



If you are asked for B, cover up B:

$$B = \frac{A}{C}$$

If you are asked for C, cover up C:

$$C = \frac{A}{B}$$