

(159) Gay-Lussac's Law

TODAY'S
DATE

E.Q.: How does gas pressure change in flexible and rigid containers?

BIG IDEA: If you heat a sample of gas in a closed rigid container, its pressure will ↑

Gay-Lussac's Law states that the pressure of a given amount of gas is directly proportional to temp, if the gas volume does not Δ

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

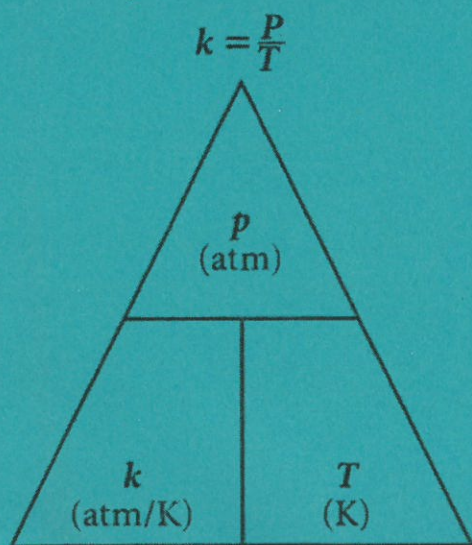
or

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

GAY-LUSSAC'S LAW

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

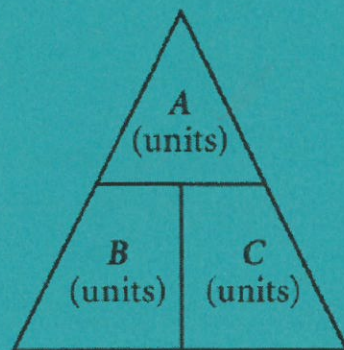
Gay-Lussac's Law



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:

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