

Gas Laws: Common conversions in gas laws

There are 3 different types of temperature scales. Using Factor Label convert the following if possible.

a. $25^{\circ}\text{C} = \underline{298} \text{ K}$

b. $298\text{K} = \underline{25} \text{ C}$

c. $100\text{K} = \underline{-173} \text{ C}$

d. $0\text{K (absolute zero)} = \underline{-273} \text{ C}$

e. $212^{\circ}\text{F} = \underline{100} \text{ C} = \underline{373} \text{ K}$

f. $32^{\circ}\text{F} = \underline{0} \text{ C} = \underline{273} \text{ K}$

$1 \text{ torr} = 1 \text{ mmHg}$

Look up on your phone for a Kelvin to F converter. What is the lowest possible temperature in F°?

Common Units of Pressure

Convert the following

a. $1.5\text{atm} = \underline{1140} \text{ mmHg}$

b. $400\text{torr} = \underline{400} \text{ mmHg}$

c. $250\text{mmHg} = \underline{.32} \text{ atm}$

d. $1 \text{ atm} = \underline{760} \text{ mmHg}$

$$\frac{1.5 \text{ atm}}{1 \text{ atm}} \times \frac{760 \text{ mmHg}}{1 \text{ mmHg}} = 1140 \text{ mmHg}$$

$$\frac{400 \text{ torr}}{1 \text{ torr}} \times \frac{1 \text{ mmHg}}{1 \text{ mmHg}} = 400$$

$$\frac{250}{760 \text{ mmHg}} \times \frac{1 \text{ atm}}{1 \text{ mmHg}} = .32$$

e. The atmospheric pressure on our weather channel could be 30inHg Convert this to the following.

i. 762 mmHg

ii. 1 atm

$$\frac{30 \text{ in}}{1 \text{ in}} \times \frac{2.54 \text{ cm}}{1 \text{ cm}} \times \frac{10 \text{ mm}}{1 \text{ mm}} = 762 \text{ mmHg}$$

approx 1 atm