

Unit VI. Assignment 1: Conversions involving Gas Law Variables

1. Convert the following temperature measurements. Show your work by including the correct equation.

- a. $56.9\text{ }^{\circ}\text{C} = \underline{\hspace{2cm}}\text{ }^{\circ}\text{F}$ b. $108.24\text{ }^{\circ}\text{F} = \underline{\hspace{2cm}}\text{ }^{\circ}\text{C}$ c. $-43.2\text{ }^{\circ}\text{C} = \underline{\hspace{2cm}}\text{ }^{\circ}\text{F}$
- d. $71.20\text{ }^{\circ}\text{C} = \underline{\hspace{2cm}}\text{ K}$ e. $-80.35\text{ }^{\circ}\text{F} = \underline{\hspace{2cm}}\text{ K}$ f. $169.4\text{ K} = \underline{\hspace{2cm}}\text{ }^{\circ}\text{C}$

2. Convert the following pressures

- a. $1.45\text{ atm} = \underline{\hspace{2cm}}\text{ mmHg}$ b. $0.031\text{ kPa} = \underline{\hspace{2cm}}\text{ atm}$ c. $586.09\text{ torr} = \underline{\hspace{2cm}}\text{ atm}$
- d. $72000\text{ Pa} = \underline{\hspace{2cm}}\text{ torr}$ e. $27.99\text{ inHg} = \underline{\hspace{2cm}}\text{ bar}$ f. $50\text{ lbs/ft}^2 = \underline{\hspace{2cm}}\text{ mbar}$

3. Convert the following volumes

- a. $35.8\text{ mL} = \underline{\hspace{2cm}}\text{ L}$ b. $0.099\text{ gal} = \underline{\hspace{2cm}}\text{ mL}$ c. $1.5\text{ m}^3 = \underline{\hspace{2cm}}\text{ gal}$
- d. $800\text{ ft}^3 = \underline{\hspace{2cm}}\text{ mL}$ e. $64\text{ fl. oz.} = \underline{\hspace{2cm}}\text{ L}$ f. $1.04 \times 10^{-12}\text{ km}^3 = \underline{\hspace{2cm}}\text{ gal}$

Answers:

1. a. $134\text{ }^{\circ}\text{F}$ b. $42.356\text{ }^{\circ}\text{C}$ c. $-45.8\text{ }^{\circ}\text{F}$ d. 344.35 K e. 210.7 K f. $-103.8\text{ }^{\circ}\text{C}$
2. a. $1.10 \times 10^3\text{ mmHg}$ b. $3.1 \times 10^{-4}\text{ atm}$ c. 0.77117 atm d. 540 torr e. 0.9479 bar f. 20 mbar
3. a. 0.0358 L b. 370 mL c. $4.0 \times 10^2\text{ gal}$ d. $2 \times 10^7\text{ mL}$ e. 1.9 L f. 0.275 gal