Name_____ Date_____ Period_____

Pressure Worksheet

1 atm = 760 mmHg = 101325 Pa = 14.7 p.s.i. = 101.325 KPa = 760 torr

1) An experiment at Sandia National Labs in New Mexico is performed at 758.7 mmHg. What is this pressure in atm?

$$\frac{1\ \text{atm}}{760\ \text{mmHg}} \left| \frac{758.7\ \text{mmHg}}{} \right. = \boxed{0.9983\ \text{atm}}$$

2) A bag of potato chips is sealed in a factory near sea level. The atmospheric pressure at the factory is 761.3 mmHg. The pressure inside the bag is the same. What is the pressure inside the bag of potato chips in Pa?

$$\frac{101325\ \text{Pa}}{760\ \text{mmHg}} \left| \frac{761.3\ \text{mmHg}}{} \right. = \boxed{101{,}500\ \text{Pa} \text{ or } 1.015 \times 10^5\ \text{Pa}}$$

3) The same bag of potato chips from the previous problem is shipped to Denver, Colorado, where the atmospheric pressure is 99.82 KPa. What is the difference (in Pa) between the pressure in the bag and the atmospheric pressure?

$$\frac{101325\ \text{Pa}}{101.325\ \text{KPa}} \left| \frac{99.82\ \text{KPa}}{} \right. = 99820\ \text{Pa}$$

$$\begin{array}{r} 101{,}500\ \text{Pa} \\ -\ 99820\ \text{Pa} \\ \hline \boxed{1{,}680\ \text{Pa Difference}} \end{array}$$

4) The pressure gauge on a compressed air tank reads 43.2 p.s.i. What is the pressure in atm?

$$\frac{1\ \text{atm}}{14.7\ \text{p.s.i.}} \left| \frac{43.2\ \text{p.s.i.}}{} \right. = \boxed{2.94\ \text{atm}}$$

5) On a warm, sunny day, a student uses a tire pressure gauge to test the air pressure of her tires. If the gauge reads a pressure of 35 p.s.i., what is the pressure in torr?

$$\frac{760\ \text{torr}}{14.7\ \text{p.s.i.}} \left| \frac{35\ \text{p.s.i.}}{} \right. = \boxed{1800\ \text{torr}}$$

6) What has more pressure, 14,500 Pa or 7.2 atm?

$$\frac{1\ \text{atm}}{101325\ \text{Pa}} \left| \frac{14{,}500\ \text{Pa}}{} \right. = 0.143\ \text{atm}$$

$$\frac{101325\ \text{Pa}}{1\ \text{atm}} \left| \frac{7.2\ \text{atm}}{} \right. = 730{,}000\ \text{Pa}$$

$$\boxed{7.2\ \text{atm} > 14{,}500\ \text{Pa}}$$