

Name _____

Period _____

PRESSURE UNIT CONVERSIONS WORKSHEET

$$1 \text{ atm} = 760 \text{ mm Hg} = 101325 \text{ Pa} = 14.7 \text{ lb/in}^2 = 1.013 \text{ bar}$$

1. The air pressure for a certain tire is 109 kPa. What is this pressure in atmospheres?
2. The air pressure inside a submarine is 0.62 atm. What would be the height of a column of mercury balanced by this pressure?
3. The weather news gives the atmospheric pressure as 1.07 atm. What is this atmospheric pressure in mm Hg?
4. An experiment at Sandia National Labs in New Mexico is performed at 758.7 mm Hg. What is this pressure in atm?
5. A bag of potato chips is sealed in a factory near sea level. The atmospheric pressure at the factory is 761.3 mm Hg. The pressure inside the bag is the same. What is the pressure inside the bag of potato chips in Pa?
6. The same bag of potato chips from problem 5 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?

7. The pressure gauge on a compressed air tank reads 43.2 lb/in². What is the pressure in atm?

8. The pressure in the tire of an automobile is 34.8 lb/in². What is the pressure in kPa?

9. Convert the following pressure units using unit analysis when necessary:

a. 2 atm = _____ bar d. 4.9 bar = _____ psi

b. 2 bar = _____ atm e. 113 kPa = _____ bar

c. 669 mm Hg = _____ bar f. 35 bar = _____ Pa

| | |
|---------------|---------------------------|
| $K = C + 273$ | $C = (F - 32) \times 5/9$ |
| $C = K - 273$ | $F = (C \times 9/5) + 32$ |

Use the above formulas above to convert the following:

- 1) 250 Kelvin to Celsius
- 2) 339 Kelvin to Celsius
- 3) 17 Celsius to Kelvin
- 4) 55 Celsius to Kelvin
- 5) 89.5 Fahrenheit to Celsius
- 6) 383 Kelvin to Fahrenheit
- 7) 380 Kelvin to Celsius
- 8) 261 Kelvin to Celsius
- 9) 79.6 Fahrenheit to Kelvin
- 10) 183 Celsius to Fahrenheit