

Pressure Conversion Problems

$$1 \text{ atm} = 101.3 \text{ kPa} = 101,325 \text{ Pa} = 760 \text{ mm Hg} = 760 \text{ torr} = 14.7 \text{ lb/in}^2 \text{ (psi)}$$

1. The air pressure for a certain tire is 109 kPa. What is this pressure in atmospheres?
1.08 atm
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? **471 mm Hg**
3. The weather news gives the atmospheric pressure as 1.07 atm. What is this atmospheric pressure in torr? **813 torr**
4. An experiment at Sandia National Labs in New Mexico is performed at an atmospheric pressure of 758.7 mm Hg. What is this pressure in atm? **0.9983 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? **101,498 Pa**
6. The same bag of potato chips from Problem 5 is shipped to a town in 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 of the town? **1,678 Pa**
7. The pressure gauge on a compressed air tank reads 43.2 lb/in². What is the pressure in atm? **2.94 atm**
8. The pressure in the tire of an automobile is 34.8 lb/in². What is the pressure in kPa?
240. kPa
9. 1.75 atm = _____ torr
10. 2.04 atm = _____ kPa
11. 0.21 atm = _____ psi
12. 973 torr = _____ mm Hg
13. 187 torr = _____ atm
14. 242 torr = _____ atm
15. 1665 torr = _____ atm
16. 400 mmHg = _____ atm
17. 525 mmHg = _____ kPa
18. 25 lb/in² = _____ atm
19. 50 psi = _____ torr
20. 152,000 Pa = _____ mm Hg