

WORKSHOP 7:
Gas Laws

NAME _____

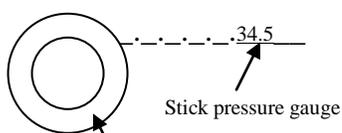
Section _____

Introduction to Gases

Show your work. Be careful to give answer in correct number of significant figures and in scientific notation if the answer is very large or very small.

1. The atmospheric pressure on Mars is about 2.00 torr, depending on the location.
Express this pressure in atm, psi and kPa

2. A pressure gauge measures the difference in the pressures inside and outside a tire.



The gauge pressure is 34.5 psi.
The atmospheric pressure outside the tire is 14.7 psi.

What is the actual air pressure inside the tire?

If this tire goes flat, what is the gauge pressure? _____
What is the actual air pressure inside the flat tire? _____

If you take this same inflated tire that has a gauge pressure of 34.5 psi up the mountain to an altitude where the atmospheric pressure is 11.4 psi, what gauge pressure will you read? Explain.

3. What is the basic reason that gases exert pressure equally in all directions?
(Think about what molecules of gas are doing.)

4. According to Dalton, the pressure exerted by a gas inside a container is proportional to the number of molecules of that gas. If 4.00×10^{23} molecules of N_2 and 2.00×10^{23} molecules of O_2 are mixed in a container they exert a total pressure of 1686 torr. What portion of that pressure (in torr units) is exerted by the N_2 ?

