

gas pressure	The pressure exerted on a container by a gas enclosed inside the container.
vacuum	A space that contains no atoms or molecules, an empty space. Because the space is completely empty, there would be NO pressure.
atmospheric pressure	The gas pressure that is caused by the earth's atmosphere, often measured in mm of Mercury, atmosphere's, or kilo-pascals. Sometimes it is still measured in pounds per square inch.
barometer	The device that measures barometric pressure, or air pressure. They originally used mercury in a vacuum tube, and the height of the column of mercury was measured in millimeters, hence the term "mercury is rising" (or falling). Mercury barometers are no longer commonly used in the US.
kilo-Pascal	The metric unit of choice for measuring air pressure or gas pressure. The "normal" or standard pressure is 101.3 kPa, which is of course equal to 760. mm of Hg, and also to 1.00 atmosphere's of pressure.

1 A gas is at the pressure of 1.25 atm. What is that pressure in kPa?

$\frac{1.25 \text{ atm}}{1} \times$	$\frac{101.3 \text{ kPa}}{1.0 \text{ atm}} =$	127 kPa
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2 How many mm Hg is the pressure of 1.25 atm equal to?

$\frac{1.25 \text{ atm}}{1} \times$	$\frac{760. \text{ mm Hg}}{1.0 \text{ atm}} =$	950. mm Hg
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3 On top of Mt Everest the air pressure is about 0.70 atm. How many kPa is 0.70 atm?

$\frac{0.70 \text{ atm}}{1} \times$	$\frac{101.3 \text{ kPa}}{1.0 \text{ atm}} =$	71 kPa
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4 0.70 atm converted to mm Hg is equal to what?

$\frac{0.70 \text{ atm}}{1} \times$	$\frac{760. \text{ mm Hg}}{1.0 \text{ atm}} =$	530 mm Hg
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- 5 What are the temperature and pressure of STP? 0°C & 1 atm pressure
- 6 Express the temperature of STP in Kelvin. 273K
- 7 Express the pressure of STP in mm Hg and in kPa. 760. mm of Hg = 101.3 kPa
- 8 What is so significant about the temperature 0 Kelvin? Absolute zero is when all molecular motion stops, and this temperature has not been reached by man. It might not even exist in the Universe. There can be no gas pressure at 0 Kelvin either, as the molecules or atoms would stop moving, and therefore have no collisions to cause pressure.
- 9 Why does spaghetti take longer to cook at my sister in law Donna's house in Boulder, Colorado?
(hint: 5,400 feet above sea level) Because of the lower air pressure due to the fact that she is living high up in the mountains, water will boil at a lower temperature (see Table H). Since the water is boiling at a lower temperature, in order to cook spaghetti to the expected "softness", it would take longer because the temperature of boiling water is lower there.