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| Manometers & Story Problems  East.H.S. ©λ€M|5+rγ  visit http://genest.weebly.com |  | Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Come for assistance and cheerful encouragement after school Tues, Thurs, or every day at lunch |

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| ***You will always be given these numbers on tests and quizzes.*** |  |
| 0 degrees C = 273 kelvins 760. torr = 760. mmHg = 1.00 atm = 101 kPa = 101,300 pascals = 14.7 p.s.i.  *never use °C for a gas math problem* | |

1. Name and draw the apparatus we use to measure atmospheric (ambient) pressure.
2. There are many correct answers to this question. Name two places on Earth where the ambient pressure is usually more than in Madison. (You might look on a map or globe that shows elevations of places compared to sea level.)
3. Name a place on Earth where the ambient pressure is usually less than in Madison.
4. Why is the fluid in a barometer mercury, rather than water or another liquid?
5. In each case, solve for the pressure inside the flask.



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| 1. Hydrogen gas is collected at 0.0 °C. The total pressure of the sample is 755 millimeters of mercury. The sample then warms to 24 °C while volume remains unchanged. What is the final pressure of the hydrogen gas? | Write numbers for *initial* and *final*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | |

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| 1. A sample of 0.010 mole of oxygen gas is confined at 127 °C and 0.80 atmosphere. What would be the pressure of this sample at 27 °C and the same volume? | Write numbers for *initial* and *final*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | |
| 1. A 2.00-liter sample of nitrogen gas at 27 °C and 600. millimeters of mercury is heated until it occupies a volume of 5.00 liters. If the pressure remains unchanged, the final temperature of the gas is | Write numbers for *initial* and *final*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | |

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| 1. A closed flask of air (0.250L) contains 2.3 x 1021 particles. The pressure probe on the flask reads 93 kPa. A student uses a syringe to add an additional 1.3 x 1021 particles of air through the stopper. Find the new **total** amount of particles and then find the new pressure inside the flask. | Write numbers for *initial* and *final*. |
| Do math with ratios (dimensional analysis) to solve for a numerical answer. Don’t forget units. | |