

Pressure & Temperature

Name: _____

*Show set up and all work (including units) to receive full credit.

1) The air pressure inside a submarine is 0.72 atm. What would be the height of a mercury column inside the submarine?

2) The recommended air pressure in a certain tire is 242 kPa. What is this pressure in atmospheres?

3) An experiment in a lab is performed at a pressure of 749.1 mm Hg. What is this pressure in torr?

4a) A bag of potato chips is sealed in a factory at a pressure of 769 mm Hg. What is this pressure in pascals?

b) The bag of chips is shipped to a town in Colorado, where the air pressure is 0.94 atm. What is the difference in pressure (in kPa) between the pressure in the bag and the atmospheric pressure in the town?

5) What would be the pressure of a room be if the mercury read 850 mm Hg in torr, atmospheres, psi and in kPa?

6) Complete the following pressure conversions:

a) 32.0 psi --> atm

c) 1960 mm Hg --> kPa

b) 25025 Pa --> torr

d) 5.11 atm --> psi

7) Fill in the data table with appropriate values by performing temperature conversions:

| Fahrenheit ($^{\circ}\text{F}$) | Celsius ($^{\circ}\text{C}$) | Kelvin (K) |
|-----------------------------------|--------------------------------|------------|
| | | 373 |
| | 37 | |
| 32 | | |
| | 25 | |
| 85 | | |
| | | 0 |
| | 7 | |
| | | 6000 |
| 72 | | |
| | 177 | |
| | | 325 |
| 65 | | |
| | | -54 |
| | -178 | |
| -30 | | |
| | -40 | |
| -475 | | |

8) Two of the above problems cannot be calculated. Why?