# Gas Laws Practice Problems

1. Convert $3.6 \times 10^2$ atm to torr.

   [A] 13,000 torr     [B] 25 torr     [C] 270,000 torr     [D] 0.47 torr     [E] 53,000 torr

Perform the following conversions of pressure units:

2. 1.13 atm = _____ torr

   [A] 798          [B] 430.          [C] 937          [D] 859          [E] 653

3. 168 torr = _____ atm

   [A] 0.442        [B] 0.221         [C] 0.802        [D] 243          [E] 136

4. $5.0 \times 10^9$ Pa = _____ atm

   [A] $9.8 \times 10^4$     [B] $1.7 \times 10^5$     [C] $4.9 \times 10^4$     [D] $4.3 \times 10^4$     [E] $2.5 \times 10^4$

5. 263 kPa = _____ Pa

   [A] $2.63 \times 10^4$     [B] 2.63     [C] 0.263     [D] $2.63 \times 10^5$     [E] $5.26 \times 10^5$

6. A gas occupies a volume of 202 mL at a pressure of 505 torr. To what pressure must the gas be subjected in order to change the volume to 65.0 mL? Assume constant temperature.

7. A balloon has a volume of 1.20 L at 24.0°C. The balloon is heated to 48.0°C. Calculate the new volume of the balloon.

   [A] 1.70 L        [B] 2.40 L        [C] 2.10 L        [D] 1.20 L        [E] 1.30 L

8. A helium balloon has a volume of 2.30 L at 23.5°C and a pressure of 1.00 atm at sea level. The balloon is released and floats upward. At a certain height the atmospheric pressure is 0.810 atm and the temperature is 12.0°C. Calculate the volume of the balloon.

   [A] 1.45 L        [B] 2.84 L        [C] 2.21 L        [D] 2.73 L        [E] none of these

9. Which of the following will give a graph with a straight line and a y-intercept of 0?

   [A] volume vs. temperature (°C)              [B] volume vs. temperature (K)

   [C] volume vs. 1/temperature (°C)            [D] volume vs. 1/temperature (K)

   [E] none of these

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10. You transfer a sample of a gas at 17°C from a volume of 5.67 L and 1.10 atm to a container at 37°C that has a pressure of 1.10 atm. What is the new volume of the gas?

   [A]  2.61 L          [B]  5.90 L          [C]  5.30 L          [D]  12.34 L          [E]  none of these

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[1]  [C]_____

[2]  [D]_____

[3]  [B]_____

[4]  [C]_____

[5]  [D]_____

[6]  1570 torr; 2.07 atm_____

[7]  [E]_____

[8]  [D]_____

[9]  [B]_____

[10] [B]_____