

**Suggested Book Problems**

**Chapt 10: 3,7,21,26,33,37,43,47,61,75,80**

1. Complete the following conversions. Show all work to receive ANY credit.

a. 1.0 atm to mmHg

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b.  $10^5$  Pa to atm

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c. 690 mmHg to torr

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d. 101.3 kPa to mmHg

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2. The tires on your car are inflated to 35 pounds per square inch (psi). Convert this pressure to Pascals.

1.0 atm = 14.7 psi Show all work to receive ANY credit.

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3. A gas sample at a pressure of 1.23 atm has a volume of  $15.8 \text{ cm}^3$ . What will be the volume if the pressure is increased to 3.16 atm?

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4. The universal gas constant is used with two sets of units. Using dimensional analysis show that:  $R = 8.314 \text{ J}/(\text{mol K})$  is equal to  $0.08206 \text{ (L atm)}/(\text{mol K})$ .

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5. Complete the following conversions. Show all work to receive ANY credit.

a.  $0\text{ }^{\circ}\text{C}$  to Kelvin

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b.  $100\text{ }^{\circ}\text{C}$  to  $^{\circ}\text{F}$

	2
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c.  $77\text{ K}$  to  $^{\circ}\text{C}$

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d.  $-269.16\text{ }^{\circ}\text{C}$  to Kelvin

	2
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6. When a stock car races around a track, the temperature of the air in its tires can triple from  $25\text{ }^{\circ}\text{C}$  up to  $75\text{ }^{\circ}\text{C}$ .

a. Convert these temperatures to Kelvin. You must show all work to receive ANY credit.

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b. Does the temperature in the tires triple when we use the units of Kelvin? Explain your answer.

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7. What does Boyle's law describe? How would you make the observations about gases that would lead you to Boyle's law (what experiments were done)?

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