

Name: _____

Date: _____

[5 pt] 1. Perform the following conversions:

(a) Convert 250,000 Pa to atm. 1(a) _____

(b) Convert 0.75 atm to torr. 1(b) _____

(c) 179 mm Hg to atm 1(c) _____

(d) 6.00 Pa to mm Hg 1(d) _____

(e) Convert Convert 352 torr to kPa. 1(e) _____

[5 pt] 2. Perform the following conversions. Include the proper units and Significant Figures in your answers.

(a) Convert 22.0 °C to K 2(a) _____

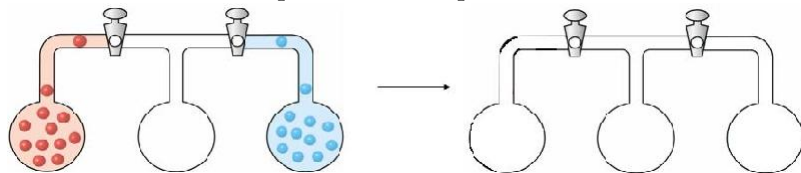
(b) Convert 200. K to °C 2(b) _____

(c) Convert 99.5 °F to °C 2(c) _____

(d) Convert 20. °C to °F 2(d) _____

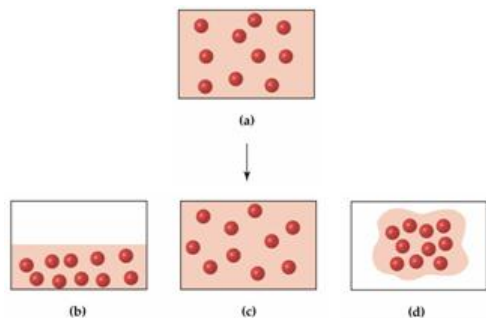
(e) Convert 75 °F to K 2(e) _____

- [2 pt] 3. Three bulbs, two of which contain different gases are connected as shown below. Draw what will happen to the gas molecules when the valve connecting all three bulbs is opened and the system is allowed to come to equilibrium. Explain.



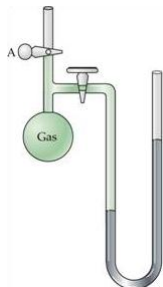
- [2 pt] 4. Assume you have a sample of gas at 350 K in a sealed container of fixed volume, as represented in (a) below. Which of the drawings below represents the gas after the temperature is lowered to 100 K? Explain.

4. _____



- [3 pt] 5. As drawn is the P_{gas} greater than, less than or equal to the atmospheric pressure? Explain. Redraw the following open-ended manometer to show what it would look like when stopcock A is opened. Explain.

5. _____



- [3 pt] 6. What is the gas pressure (in mm Hg) inside a closed container of gas connected to a mercury-filled open-ended manometer when the level in the arm connected to the container is 28.3 cm higher than the level in the arm open to the atmosphere, and the atmospheric pressure is 1.021 atm. Start by drawing a picture of the apparatus described above.

6. _____

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- [4 pt] 7. A sample of gas at 0.75 atm occupies a volume of 400. mL.
What is the new volume if the pressure is increased to 1.5 atm? 7. _____
- [4 pt] 8. A balloon holds 15.0 mols of Helium gas with a volume of 336 L. How many mols of gas 8. _____
must be let out of the balloon to decrease its volume to 75.0 L?
- [4 pt] 9. A sample of gas occupies a volume of 525 mL at 45 °C. What will the new temperature
(in °C) be when the volume is increased to 1500.0 mL? 9. _____
- [4 pt] 10. A scuba cylinder at 3000 PSI at 25 °C is heated to 65 °C. What is the pressure of the 10. _____
cylinder in mm Hg?
- [4 pt] 11. A sample of gas occupies a volume of 5.5 gallons at 400. mmHg. What will the new 11. _____
pressure (in atm.) be when the volume is changed to 100.0 mL?