

7th
Period
Chem

23-25. The experiments of Jacques Charles revealed that (a) all gases expand or contract at the .(23). rate with changes in temperature, providing the pressure is .(24). and (b) the change in volume amounts to .(25). of the original volume at 0°C for each Celsius degree the temperature is changed.	23
26. The temperature of the triple point of water is defined as .(26). °K.	24
27. Kelvin temperatures are just .(27). degrees higher than Celsius temperatures.	25
28-29. Charles' law states that the volume of a definite quantity of dry gas varies .(28). with the .(29). temperature, provided the pressure remains constant.	26
30. Charles' law holds for real gases with considerable accuracy except at .(30).	27
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DIRECTIONS: Place the properly labeled answers to the following problems in the spaces provided at the right. Use cancellation wherever possible. Observe the rules for significant figures. Show all calculations in your notebook or on a separate sheet of paper. Use the methods outlined in Chapter 9 of MODERN CHEMISTRY.

31. A gas occupies a volume of 75.0 ml when the pressure is 380 mm. What volume does the gas occupy at 1140 mm?	31
32. The hydrogen in an eudiometer has a volume of 80.0 ml when the pressure is 740 mm. What is its volume at standard pressure?	32
33. If 600 ml of hydrogen is collected when the temperature is 27°C, what volume will the gas occupy at 23°C?	33
34. The volume of a gas is 1164 ml at 18°C. What is its volume at standard temperature?	34
35. To what Celsius temperature must 580 ml of oxygen at 17°C be raised to increase its volume to 700 ml?	35
36. Given 700 ml of oxygen at 7°C and 80.0 cm pressure, what volume does it have at 27°C and 50.0 cm pressure?	36
37. A gas has a volume of 1140 ml at 37°C and 620 mm pressure. Calculate its volume at STP.	37
38. A volume of 50.0 ml of gas is collected by displacement of mercury at 17°C and 760 mm pressure. The mercury level inside the eudiometer is 30.0 mm higher than that outside. What volume will the gas occupy at STP?	38
39. A gas occupies a volume of 40.0 ml at 734.8 mm and 22°C. The gas was collected by displacement of water, and the water level inside the eudiometer is the same as that outside. What is the volume of dry gas at STP?	39
40. A eudiometer contains 45.0 ml of oxygen when the barometer reading is 731.7 mm and the temperature is 27°C. The water level inside the tube is 68 mm higher than that outside. What volume does the dry oxygen occupy at STP?	40

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