The Ideal Gas Law 2

1) 25 g of water is heated to 110 ^{o}C and is confined to a volume of 1500 ml. What is the pressure inside the container?

2) At what temperature is 0.78 grams of CO_2, when it is placed in a 500 ml container at 1.97 atm of pressure?

3) Helium is collected at a high pressure of 14.3 atm. A 100 L tank is filled at the freezing point of water. How many moles of He gas are collected?

4) From problem #3, suppose the tank was emptied, and allowed to disperse at room temperature and pressure, approximately 77 ^{o}F and .98 atm. Using the amount of moles collected, what volume would the gas occupy?

5) A 30 g sample of carbon monoxide is allowed to heat from 293 K to 310 K on a summer's day as the pressure increases from 0.94 atm to 1.04 atm. Assuming the gas is confined and allowed to expand as necessary
a) use the ideal gas law to determine the volume of gas initially in the sample.

b) use the ideal gas law to determine the volume of gas after the sample is heated.

Answers: 1) 29.1 atm   2) 677 K   3) 63.8 moles