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If 0.105 mol of He gas occupies a volume of 2.35 liters at a certian temperature and pressure, what volume will 0.337mol of He gas occupy under the same conditions?

$$\frac{2.35}{0.105} = \frac{V_2}{0.337}$$

$$0.337 \times \frac{2.35}{0.105} = V_2 = 7.54 \text{ Liters}$$

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If 2.01 grams of He gas occupies a volume of 12.0 Liters at 25 degrees C, what volume will 6.25 grams of He gas occupy under the same conditions?

$$\frac{2.01\text{ g He}}{4\text{ g He}} \left| \frac{1\text{ mol He}}{} \right. = 0.5025\text{ mol He}$$

$$\frac{6.25\text{ g He}}{4\text{ g He}} \left| \frac{1\text{ mol He}}{} \right. = 1.5625\text{ mol He}$$

$$\frac{12.0}{0.5025} = \frac{V_2}{1.5625}$$

$$1.5625 \times \frac{12.0}{0.5025} = V_2 = 37.31\text{ Liters}$$

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If 3.25 mol of Ar gas occupies a volume of 100.0 L at a particular temperature and pressure, what volume does 14.15 mol of Ar gas occupy under the same conditions?

$$\frac{100}{3.25} = \frac{V_2}{14.15}$$

$$14.15 \times \frac{100}{3.25} = V_2 = 435.4 \text{ Liters}$$

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If 3.20 grams of Oxygen gas occupies a volume of 2.24 Liters at zero degrees C and a pressure of 1 atm, what volume would be occupied by 32.00 grams of Oxygen gas under the same conditions?

$$\frac{3.20\ g\ O_2}{} \left| \frac{1\ mol\ O_2}{32\ g\ O_2} \right. = 0.1\ mol\ O_2$$

$$\frac{32.00\ g\ O_2}{} \left| \frac{1\ mol\ O_2}{32\ g\ O_2} \right. = 1\ mol\ O_2$$

$$\frac{2.24}{0.1} = \frac{V_2}{1}$$

$$1 \times \frac{2.24}{0.1} = V_2 = 22.4\ Liters$$