

Idea Gas Law and Stoichiometry
CHEM 1305
Quiz

Given the reaction below and a gas cylinder with a volume of 30 liters at 300 K, calculate the pressures of H₂ and O₂ necessary to produce 90 grams of water.

	2 H ₂	+	O ₂	→	2 H ₂ O
mol wt	2		32		18
grams					90
moles	5		2.5		5

Pressure H₂

$$PV = nRT$$

$$P = \frac{nRT}{V}$$

$$P = \frac{(5 \text{ moles})(0.0821)(300 \text{ K})}{(30 \text{ liters})} = 4.1 \text{ atm}$$

Pressure O₂

$$PV = nRT$$

$$P = \frac{nRT}{V}$$

$$P = \frac{(2.5 \text{ moles})(0.0821)(300 \text{ K})}{(30 \text{ liters})} = 2.05 \text{ atm}$$

Pressure H₂ = 4.1 atm

Pressure O₂ = 2.05 atm