Hydrogen gas can be produced in the laboratory through the reaction of hydrochloric acid with magnesium metal.
$2HCl(aq)+Mg(s)\rightarrow H2(g)+MgCl2(aq)$. When 12.5 g of Mg reacts, what volume, in liters, of H2 gas is produced at 22 ∘C and 809 mmHg?
Express your answer with the appropriate units.

P = 107,857 kPa

T = 22+273 = 295 K

n(H2) = n(Mg) = 12.5g/24g/mol = 0.52mol

PV = nRT

V = nRT/P = 0.52mol*8.31J/mol*K *295K/ 107857Pa= 0.0118m3 = 11.8L