Stoichiometry Homework #1

1. In the formation of carbon dioxide from carbon monoxide and oxygen, how many moles of carbon monoxide are needed to react completely with 7.0 moles of oxygen gas?

2CO(g) + O2(g) 🡪2CO2(g)

1. How many moles of oxygen are required to burn 22.4 liters of ethane gas, C2H6, at standard conditions?

2C2H6(g) + 7O2(g) 🡪 4CO2(g) + 6H2O(g)

1. Suppose that an excess of propane, C3H8, burns in 320 g of O2. How many moles of H2O will be formed?

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3H2(g) + N2(g) 🡪 2NH3(g)

1. How many liters of hydrogen, H2, are needed to react with 10. liters of nitrogen gas in the reaction forming ammonia?

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1. How many grams of calcium must react with sulfuric acid, H2SO4, in order to produce 5.6 liters of hydrogen gas?

Ca + H2SO4 🡪 CaSO4 + H2

ANSWERS: 1)14 mol CO2 2) 3.50 mol O2 3) 8.0 mol H2O 4) 4.00 mol NH3 5) 30. L H2 6) 10. g Ca

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