Answer on Question #54708 – Chemistry – General Chemistry

Question 1:
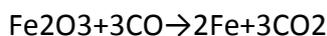
Fe2O3+3CO→2Fe+3CO2
How many grams of CO are needed to react with 3.22 g of Fe2O3?
Express the mass in grams to three significant figures

Solution 1:

M(Fe2O3)=160 g/mol;

M(CO)=28 g/mol;

According to the equation: v(Fe2O3) : v(CO) = 1:3;

v=m/M;

v(Fe2O3) = m(Fe2O3)/M(Fe2O3);

v(CO)=m(CO)/M(CO);

v(Fe2O3)=0.020125 mol;

v(CO) = v(Fe2O3)*3;

v(CO) = 0.0604 mol;

m(CO) = v(CO)*M(CO);

m(CO) = 1.69 g

Answer: 1.69 g

Question 2:

How many grams of CO are needed to react with 1.56 mol of Fe2O3?
Express the mass in grams to three significant figures

Solution 2:

According to the previous task:

v(Fe2O3) : v(CO) = 1:3;

v(CO) = v(Fe2O3)*3;

v(CO) = 4.68 mol;

m(CO) = v(CO)*M(CO);

m(CO) = 131.04 g

Answer: 131.04 g