Station 1

Nitromethane burns according to the reaction:

$$\_\_\_\_\ CH_3NO_{2\ (l)} + \_\_\_\_\ O_{2\ (g)} \rightarrow \_\_\_\_\ CO_{2\ (g)} + \_\_\_\_\ H_2O_{\ (l)} + \_\_\_\_\ N_{2\ (g)}$$

a) What mass of H_2O is produced when 0.150g of CH_3NO_2 is burned?

b) What combined volume of gas at STP is produced if 0.316g of CH_3NO_2 is burned?

c) What volume of $O_{2\ (g)}$ at STP is required to produce 0.250g of CO_2?

Not so great	Feel a bit unsure	Confident	Super confident

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Station 2

Consider the following reaction:

$$\_\_\_\ Ca_3(PO_4)_2 + \_\_\_\ SiO_2 + \_\_\_\ C \rightarrow \_\_\_\ P_4 + \_\_\_\ CaSiO_3 + \_\_\_\ CO$$

a) What mass of P_4 is produced when 41.5g of $Ca_3(PO_4)_2$, 26.5 g of SiO_2 and 7.80 g of C are reacted?

b) How many grams of each excess reactant will remain unreacted?

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Station 3

A sample of high purity silicon is prepared by strongly heating a mixture of hydrogen and silicon tetrachloride in a sealed tube:

$$\_\_\_\_\ SiCl_{4\,(g)} + \_\_\_\_\ H_{2\,(g)} \rightarrow \_\_\_\_\ Si_{\,(s)} + \_\_\_\_ HCl_{\,(g)}$$

If exactly 1.00g of silicon is produced and the reaction is a 73.8% yield, what mass of each of $SiCl_4$ and H_2 must react?

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Station 4

What volume of $CO_{2\,(g)}$ at STP can be made when 0.0250 L of $C_5H_{12\,(l)}$ (density = 626.0 g/L), is reacted with 40.0 L of $O_{2\,(g)}$ at STP, according to the reaction:

$$\_\_\_\_\ C_5H_{12\,(l)} + \_\_\_\_\ O_{2\,(g)} \rightarrow \_\_\_\_\ CO_{2\,(g)} + \_\_\_\_\ H_2O_{\,(l)}$$

How much of the excess reactant will be left over?

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Station 4

What volume of $CO_{2\,(g)}$ at STP can be made when 0.0250 L of $C_5H_{12\,(l)}$ (density = 626.0 g/L), is reacted with 40.0 L of $O_{2\,(g)}$ at STP, according to the reaction:

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