$\qquad$
23. $\mathrm{C}_{2} \mathrm{H}_{4}(g)+3 \mathrm{O}_{2}(g) \rightarrow 2 \mathrm{CO}_{2}(g)+2 \mathrm{H}_{2} \mathrm{O}(g)$ If $2.70 \mathrm{~mol} \mathrm{C}_{2} \mathrm{H}_{4}$ is reacted with $6.30 \mathrm{~mol} \mathrm{O}_{2}$ :
a) Identify the limiting reagent.
b) Calculate the moles of water produced.
24. $\mathrm{C}_{2} \mathrm{H}_{4}(g)+2 \mathrm{O}_{2}(g) \rightarrow 2 \mathrm{CO}(g)+2 \mathrm{H}_{2} \mathrm{O}(g)$

If $2.70 \mathrm{~mol} \mathrm{C}_{2} \mathrm{H}_{4}$ is reacted with $6.30 \mathrm{~mol} \mathrm{O}_{2}$ :
c) Identify the limiting reagent.
d) Calculate the moles of water produced.
26. $2 \mathrm{C}_{2} \mathrm{H}_{2}+5 \mathrm{O}_{2} \rightarrow 4 \mathrm{CO}_{2}+2 \mathrm{H}_{2} \mathrm{O}$

How many grams of water can be produced by the reaction of $2.40 \mathrm{~mol}_{2} \mathrm{H}_{2}$ with $7.4 \mathrm{~mol} \mathrm{O}_{2}$ ?
27. When 84.8 g of iron (III) oxide reacts with an excess of carbon monoxide, 54.3 g of iron is produced. $\mathrm{Fe}_{2} \mathrm{O}_{3}+3 \mathrm{CO} \rightarrow 2 \mathrm{Fe}+3 \mathrm{CO}_{2}$ What is the percent yield of this reaction.
30. What is the percent yield if 4.65 g of copper is produced when 1.87 g of aluminum reacts with an excess of copper (II) sulfate?
$2 \mathrm{Al}+3 \mathrm{CuSO}_{4} \rightarrow \mathrm{Al}_{2}\left(\mathrm{SO}_{4}\right)_{3}+3 \mathrm{Cu}$
31. What is the difference between an actual yield and a theoretical yield?

Which yield is larger for a given reaction?
How are these values used to determine percent yield?

