

1. (7 pt) How many moles of water are made from the reaction of 2.2 moles of oxygen gas? Given the reaction: $2\text{H}_2 + \text{O}_2 \rightarrow 2\text{H}_2\text{O}$

$\text{H}_2 = 2.02 \text{ g/mol}$ $\text{O}_2 = 32.00 \text{ g/mol}$ $\text{H}_2\text{O} = 18.02 \text{ g/mol}$

$$2.2 \text{ mol O}_2 \times \frac{2 \text{ mol H}_2\text{O}}{1 \text{ mol O}_2} = 4.4 \text{ mol H}_2\text{O}$$

2. (3 pt) In another reaction, if the theoretical yield is 42.0 grams of product and the percent yield is 75%. How many grams were actually produced?

$$\% \text{ yield} = \frac{\text{act}}{\text{theo}} \times 100$$

$$75 = \frac{\text{act}}{42.0} \times 100$$

$$\text{act} = \frac{75}{100} \times 42 = 31.5 \text{ g}$$