$\frac{\text{actual}}{\text{theoretical}} \times 100$ Name: Key

Period: ____ Date: ____

# % Yield WS K & L

1. Use the following reaction: $C_6H_{6(l)} + Cl_{2(g)} \rightarrow C_6H_{5(s)} + HCl_{(g)}$
   If 36.8 g of $C_6H_5$ are actually produced, but the theoretical yield of $C_6H_5$ is 38.8 g, what is the percent yield?

$$\frac{36.8\,g}{38.8\,g} \times 100 = 94.85\%$$

2. Use the following reaction: $Cr_2O_3 + 3C \rightarrow 2Cr + 3CO$
   If the experimental yield obtained was 511 g of Cr, but you should have produced 535g of Cr, what is the percent yield?

$$\frac{511\,g}{535\,g} \times 100 = 95.51\%$$

3. Use the following reaction: $B_2O_3 + 3\ Mg \longrightarrow 3\ MgO + 2\ B$
A student performed the above reaction in chemistry lab and produced 9.25 g of magnesium oxide, but the teacher said they should have, theoretically, produced 17.4 g. What was the student's percent yield?

$$\frac{9.25g}{17.4g} \times 100 = 53.16\%$$

4. Use the following reaction: $16\ Na + S_8 \longrightarrow 8\ Na_2S$
If a chemical engineer produced 42.2 g of sodium sulfide by using 25.0 g of sodium and excess sulfur, what was his percent yield? Is this engineer good at his job? yes

$$\frac{x\,g\ Na_2S}{25g\ Na} = \frac{624.368}{367.84}$$

$$x = 42.43g$$

$$\frac{42.2g}{42.43g} = 99.46\%$$