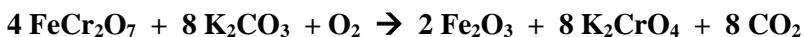# Mass-Mass Practice (#3)

and related topics such as <u>mass→mol</u> and <u>mol→mol</u>, from ChemTeam.com
The boldface problems are suggested.

<u>4</u> $FeCr_2O_7$ + <u>8</u> K_2CO_3 + O_2 → <u>2</u> Fe_2O_3 + <u>8</u> K_2CrO_4 + <u>8</u> CO_2

1) How many grams of $FeCr_2O_7$ are required to produce 44.0 g of CO_2?
2) **How many grams of O_2 are required to produce 100.0 g of Fe_2O_3?**
3) If 300.0 g of $FeCr_2O_7$ react, how many g of O_2 will be consumed?
4) **How many g of Fe_2O_3 will be produced from 300.0 g of $FeCr_2O_7$?**
5) How many grams of K_2CrO_4 are formed per gram (exactly 1 g) of K_2CO_3 used?

S + O_2 → SO_2
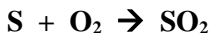
6) **How many grams of sulfur must be burned to give 100.0 g of SO_2?**
7) **How many grams of oxygen will be required for the above reaction, using the data in question 6?**

<u>6</u> $NaOH$ + <u>2</u> Al → <u>2</u> Na_3AlO_3 + <u>3</u> H_2

8) **How much aluminum, in grams, is required to produce 17.5 g of hydrogen?**
9) How much Na_3AlO_3, in g, can be formed from 165.0 g of sodium hydroxide?
10) **How many moles of NaOH are required to produce 3 g of hydrogen?**
11) How many mol of hydrogen can be prepared from 1 gram of aluminum?

BaO + H_2SO_4 → $BaSO_4$ + H_2O

12) **How much $BaSO_4$, in g, can be formed from 196.0 g of H_2SO_4?**
13) If 81.00 g of water is formed during this reaction, how much BaO, in g, was used?

$NaCl$ + $AgNO_3$ → $AgCl$ + $NaNO_3$

14) **78.00 g of NaCl should produce how many grams of AgCl?**
15) How much AgCl, in grams, can be produced from 107.0 g of $AgNO_3$?

B_2O_3 + <u>3</u> Mg → <u>3</u> MgO + <u>2</u> B

16) How much boron, in grams, can be obtained from 10.00 grams of B_2O_3?
17) **How much magnesium, in g, is required to produce 400.0 grams of boron?**

SnO_2 + C → Sn + CO_2

18) How many grams of CO_2 are formed when 1.00 gram of tin is produced?
19) How much SnO_2 (grams) is required to produce 6.00 grams of tin?
20) How much tin (in grams) is produced per gram (exactly 1 gram) of carbon used?

<u>2</u> $KMnO_4$ + H_2SO_4 → K_2SO_4 + Mn_2O_7 + H_2O

21) How many moles of Mn_2O_7 can be formed from 196.0 g of $KMnO_4$?
22) **How many grams of Mn_2O_7 can be formed from 390.0 g of $KMnO_4$?**
23) How much H_2SO_4 (g) is needed to produce 27.00 g of water?

<u>2</u> $HBrO_3$ + $Ba(OH)_2$ → $Ba(BrO_3)_2$ + <u>2</u> H_2O
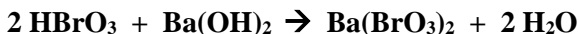
24) Determine moles of barium bromate [$Ba(BrO_3)_2$] that can be prepared from 7.000 moles each of $HBrO_3$ and $Ba(OH)_2$. (Hint: calculate two separate answers)

<u>16</u> Na + S_8 → <u>8</u> Na_2S

25) Determine moles of Na_2S that can be prepared by the reaction of 0.2240 moles of sodium with excess sulfur.