Warm up

Find the molecular formula for a compound consisting of 24.0 grams of carbon, 4.0 grams of hydrogen, and having a molecular mass of 56.1 g/mol.

C_4H_8

$4(CH_2) \rightarrow 14.04\ g/mol$

$12.0 + 2(1.01)$

$\frac{56.1}{14.04} \cdot \frac{24.0\ g\ C}{12.0\ g/mol} \cdot \frac{4\ mol\ H}{2\ mol\ C}$

Dec 7-8:34 AM

Chemical equations must be balanced before you can do anything with them.

$2H_2 + O_2 \rightarrow 2H_2O$

Prefixes represent the molar ratios of the compounds in an equation.

You must have the same number of mols of EACH element in order to be balanced.

Dec 7-8:39 AM

When counting how many of each element (or polyatomic ion) you have, subscripts apply to what they are connected to.

Coefficients are multipliers of everything in the compound.

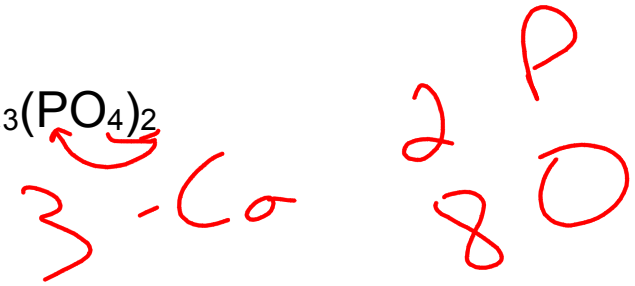
Dec 15-8:22 AM

How many of each element are there?

H_2O

H_2SO_4

$Ca_3(PO_4)_2$



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And now.....

$3H_2O$

6H 3O

$4H_2SO_4$

8H 4S 16O

$2Ca_3(PO_4)_2$

4 phosphates

2(Ca: PO4 PO4 Ca Ca) 16 O

PO4 PO4 PO4 PO4

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Using a table to balance an equation:

$H_2SO_4 + 2NaOH \rightarrow \cancel{H_2O} + Na_2SO_4$

2H(OH)

2 H +2

1 SO_4 1

2 + Na 2

2 + OH +2

Dec 7-8:41 AM

$MgF_2 + Li_2CO_3 \longrightarrow MgCO_3 + 2\,LiF$

1 Mg 1

2 F +2

2 Li +2

1 CO_3 1

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4 2 2

$2\,NH_3 + H_2SO_4 \longrightarrow (NH_4)_2SO_4$

2 + N 2

8 ~~8~~ 4 8

1 SO_4 1

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$C_3H_8 + 5O_2 \longrightarrow 3CO_2 + 4H_2O$

3 C +3

8 H 8

10 2 O 3 7 10

Dec 15-8:13 AM

calcium carbonate reacts with hydrogen phosphate to yield calcium phosphate and hydrogen carbonate

$3CaCO_3 + 2H_3PO_4 \rightarrow Ca_3(PO_4)_2 + 3H_2CO_3$

3 + Ca 3

3 + CO_3 + 3

6 3 H 2 6

2 + PO_4 2

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lead (iv) hydroxide reacts with copper (i) oxide which forms lead (iv) oxide and copper (i) hydroxide

$Pb(OH)_4 + Cu_2O \rightarrow PbO_2 + CuOH$

1	Pb	1
4	OH	4
4	Cu	4
2	O	2
2	H	2

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$C_6H_{12}O_6 + 6O_2 \longrightarrow 6H_2O + 6CO_2$

6	C	6
12	H	12
18	O	18

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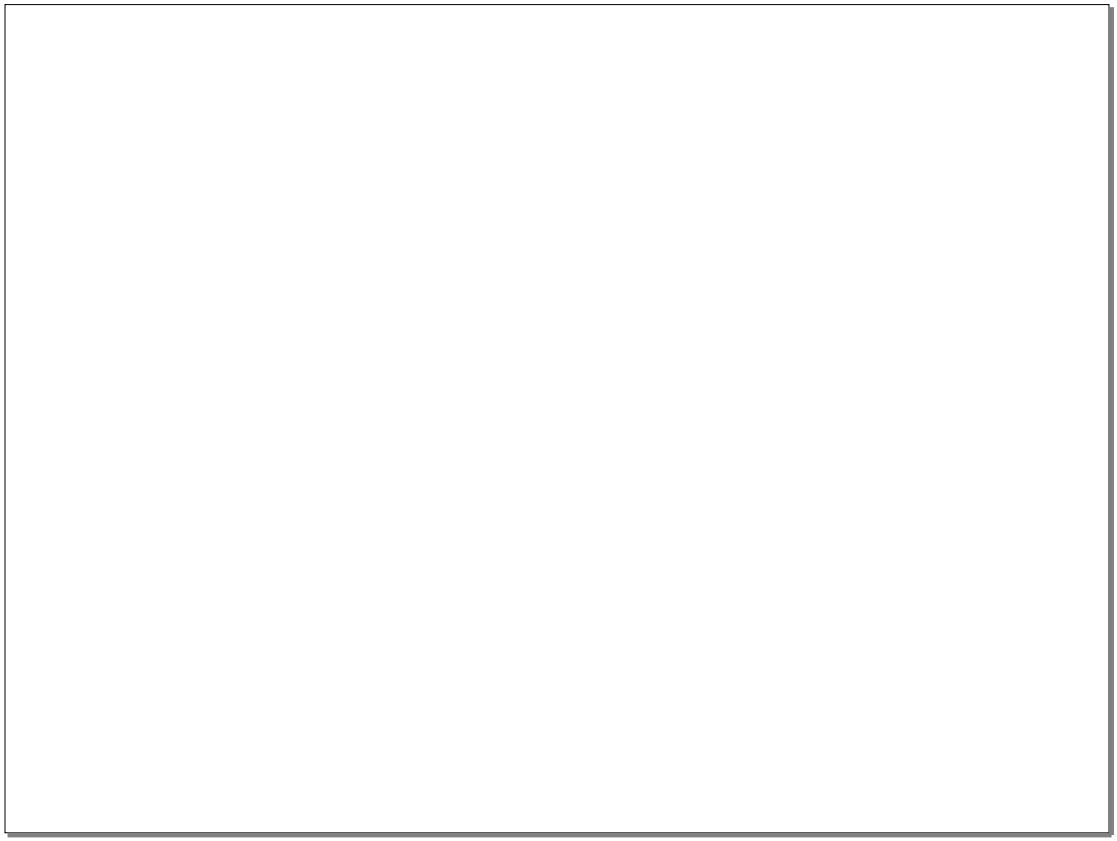

Dec 15-10:49 AM