HW14 How to balance a chemical equation.

You can use the following website:

https://phet.colorado.edu/sims/html/balancing-chemical-equations/latest/balancing-chemical-equations_en.html

You can use some rules, but remember there are a few exceptions to the rules.

1. Begin by balancing one element at a time.
2. First balance elements that appear only once on each side of the equation. Balance multi-element compounds like KCl before balancing single-element terms like Cl_2. Balance H and O atoms last.
3. At the end check the number of all atoms. The numbers on the left should be equal to the numbers to the right for the same elements.

Examples:

$Fe_2O_3 + CO \rightarrow Fe + CO_2$

First add a coefficient to balance iron

$Fe_2O_3 + CO \rightarrow 2Fe + CO_2$

Carbon is already balanced. We have to balance oxygen.

$Fe_2O_3 + 3CO \rightarrow 2Fe + 3CO_2$

Check the balance: we have 2 Fe, 3 C, and 6 O atoms on both sides.

$C_3H_8 + O_2 \rightarrow CO_2 + H_2O$

Putting a coefficient 4 with water will balance hydrogen. Inserting a 3 with carbon dioxide (CO_2) will balance carbon

$C_3H_8 + O_2 \rightarrow 3CO_2 + 4H_2O$

Now we have 10 oxygen atoms on the right, so we need a 5 with O_2

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

Now we have 3 C, 8 H, and 10 O on both sides.

Questions

I. Balance the following equations:

1. $NO + O_2 \rightarrow NO_2$
2. $Fe + Cl_2 \rightarrow FeCl_3$
3. $C + H_2 \rightarrow C_5H_{12}$
4. $C_6H_{14} + O_2 \rightarrow CO_2 + H_2O$

II. Write down compounds where oxygen has oxidation number:

a) **+2**

b) **+1**

c) **-1**