

Balancing Chemical Equations

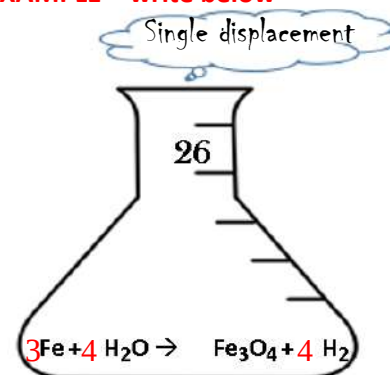
- Write out balanced equations or legibly write in coefficients
- Write the *type* of chemical reaction - synthesis, decomposition, single displacement or double displacement reactions.
- To receive full credit, attempt at least 20 problems and show work below
- To "show work" you tally up the atoms on both the reactant and products side of the equation. Then attempt to balance.
- Show work below the beaker (erlenmeyer flask) Attach additional work on loose-leaf if necessary
- Circle your 10 best.

REREAD REVIEW BELOW

Balance equations "by inspection" with these steps: The Chemist's Guide

1. Check for diatomic molecules. (add a subscript 2)
2. Balance the metals (not Hydrogen)
3. Balance the nonmetals (not Oxygen).
4. Balance Oxygen
5. Balance Hydrogen
6. The equation may now be balanced but, recount all atoms to be sure.
7. Reduce coefficients (if needed).
8. If during the course of balancing another atom becomes unbalanced, don't give up.
9. Cross it out and start at step two again. Rebalance, look for lowest common denominators & check your arithmetic and recall basic algebra rules.
10. If a problem proves too hard, don't give up. Leave it for later and try the next one.

EXAMPLE – write below



Show work –

Fe: $1 \times 3 = 3$	Fe: $3 = 3$	✓
O: $1 \times 4 = 4$	O: $4 = 4$	✓
H: $2 \times 4 = 8$	H: $2 \times 4 = 8$	✓

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1. Synthesis Reaction: $A + B \rightarrow AB$
 2. Decomposition Reaction: $AB \rightarrow A + B$
 3. Single Displacement Reaction: $A + BC \rightarrow AC + B$
 4. Double Displacement Reaction: $AB + DC \rightarrow AC + DB$
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