Factoring Polynomials Part 2

The three methods for factoring polynomials are:

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| **Difference of Squares** | **Sum or Difference of Cubes** | **Grouping** |
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The first step to factoring them is to see which of the methods applies to that polynomial. Is it a binomial? If it is, is it a difference (subtraction) or a sum (addition)? Are the terms squares or cubes? If it’s not a binomial, your only option is grouping. However, grouping doesn’t always work. Sometimes, the polynomial *cannot be factored* using any of these methods.

Once you’ve identified the type of factoring problem, use the patterns and processes to factor it.

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| **EXAMPLE**  Factor, if possible.  Type: | **EXAMPLE**  Factor, if possible.  Type:  *The pattern is:*  *(1st\_\_\_2nd)((1st) 2\_\_\_\_both\_\_\_\_(2nd)2)* | **EXAMPLE**  Factor, if possible.  Type:  *The pattern is:*  *(1st + 2nd)(1st – 2nd)*  *….WAIT!!! is not factorable, but is a difference of squares. & So…* |
| 1. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 2. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 3. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 4. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 5. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 6. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 7. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 8. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | 9. Factor, if possible.  Type: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |

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| **EXAMPLE**  Factor as much as possible.  *What can you divide from each group?*  *Bring forward what both groups have in common.* | **EXAMPLE**  Factor as much as possible.  *What can you divide from each group?*  *Bring forward what both groups have in common.* | **EXAMPLE**  Factor as much as possible.  roots:  roots: |
| **EXAMPLE**  Factor as much as possible.  *Since -3 is not a cube, and x3 doesn’t have any factors in common with -3, this is as factored as it can get.* | **EXAMPLE**  Factor as much as possible.  roots: | **EXAMPLE**  Factor as much as possible. |
| 10. Factor as much as possible. | 11. Factor as much as possible. | 12. Factor as much as possible. |
| 13. Factor as much as possible. | 14. Factor as much as possible. | 15. Factor as much as possible. |
| 16. Factor as much as possible. | 17. Factor as much as possible. | 18. Factor as much as possible. |
| 19. Factor as much as possible. | 20. Factor as much as possible. | 21. Factor as much as possible. |