

Factoring: Putting it all together

When factoring a variety of algebraic expressions, follow this factoring checklist:

1. Is there a GCF? If yes, factor out GCF.
2. If there is a binomial, is it difference of squares? If yes, factor using difference of squares formula.
3. If there is a trinomial, can you factor by splitting the middle term? If yes, factor.
4. If there is a four term polynomial, can you factor by grouping? If yes, factor.
5. After all these steps, is there now a binomial that is difference of squares? If yes, factor using formula.
6. Check for difference of squares again in your binomials.
7. Are you asked to solve (is there an equal sign?)? If yes, set each factor equal to zero and solve.

Factor each polynomial, if possible. If the polynomial cannot be factored using integers, write *prime*.

1. $x^2 - 9$

2. $3x^2 + 2x + 6x + 4$

3. $6x^2 + 5x - 4$

4. $x^2 + x - 12$

5. $6x^2 - 13x + 6$

6. $3x^2 - 60x + 57$

Solve each equation, using factoring. Check the solutions. **DO NOT GRAPH!!**

7. $x^2 + 11x + 24 = 0$

8. $4x^2 - 12x - 3x + 9 = 0$

9. $5x^2 = 15 - 22x$

10. $12x^3 = 27x$

11. $3x^2 - 7x + 2 = 0$

12. $4x^2 + 20x = -25$