

NOTES: FACTOR BY GROUPING

Steps to Factor a 4-term Polynomial

1. _____ the first two terms and the last two terms.
2. _____ out a _____ from each term.
3. Notice the binomials in your parentheses are the same. Your GCFs become one _____ and the remaining terms in the parentheses become the other _____.

What if I can't factor to get the same terms in the parentheses?

Then the polynomial is _____.

Examples: Factor the following 4-term polynomials using the grouping method.

1. $x^3 - 3x^2 - 4x + 12$

3. $2x^3 + 8x^2 + 3x + 12$

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

7. $6x^2y - 3xy + 2x - 1$

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

4. $5x^4 - 15x^3 + 3 - x$

6. $x^3 - 5x^2 + 10 - 2x$

8. $2x^3 + 6x^2 - x - 3$

Rewrite in standard form!

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Name: _____

Date: _____

Period: _____

A. FACTOR BY GROUPING

Factor the following 4-term polynomials. Be sure to factor out a GCF first, if necessary.

1. $7x^3 + 3x^2 - 28x - 12$

2. $10x^3 + 6x^2 - 45x - 12$

3. $x^3 - x^2y - 6x + 6y$

4. $4x^3 + 8x^2 - 49x - 98$

5. $3x^3 - x^2 - 3x + 1$

6. $x^3 + 4x^2 + 2x + 8$

7. $10x^3 + 4x^2 + 5x + 2$

8. $7x^3 - 21x^2y + 10x - 30y$

9. $28x^3 + 16x^2 - 21x - 12$

10. $24x^3 - 12x^2 - 5x + 15$

11. $49x^3y + 35x^2 + 56xy + 40$

12. $56xy + 49xz^2 - 24y - 21z^2$

13. $16xy + 4x^2 + 28y + 7x$

14. $8x^3 - 64x^2 + x - 8$