

9.5: Factor by the GCF and Grouping

“I WILL ...

Factor a Quadratic Functions through the GCF and Factor by Grouping.”

I. Greatest Common Factor

- A. _____ or known as the Greatest Common Factor is where one can take out the biggest of the same number
- B. Factors are the numbers you multiply together to get another number.
1. To take out the GCF as a number, make sure to take out PRIME Numbers (excluding ONE)
 2. Take out what is common with all of the factors

II. Steps in GCF Factoring

- A. Determine if there is a GCF in the polynomial.
1. If there is, divide the whole equation by the GCF.
 2. Put aside the GCF and focus on the factored equation
- B. Factor out the polynomial (put in parentheses)
- C. Bring in the GCF into equation and the factored polynomial

III. Factor by Grouping: 4 TERMS = FACTOR BY GROUPING

- A. Draw a line in between the two equations
- B. Factor the GCF on both sides and bring down the sign
- C. Make sure the parentheses the _____ and bring it down
- D. Bring down both coefficients & create the factor
- E. Always bring down the sign from the second factor

IV. Model Problems

Ex 1: Find the GCF of 15 and 18	Ex 2: Find the GCF of 24 and 108	Your Turn: Find the GCF of 20, 28, and 64
Ex 3: Find the GCF of x^7 and x^5		Ex 4: Find the GCF of x^3 , x^7 , and x^5
Ex 5: Find the GCF of $x^3 y^2$, x^7 , and x^5		Your Turn: Find the GCF of $x^{11} y^3$, $x^9 y$, and $x^5 y^7$

Ex 6: Factor $6x + 18$		Ex 7: Factor $7x^2 + 35x$
Ex 8: Factor $15x^4 + 6x^2$		Your Turn: Factor $27xy - 36y$
Ex 9: Factor $5x^3 - 35x^2 + 10x$	Ex 10: Factor $25x^4y + 15x^3y + 5x^2y$	Your Turn: Factor $15x^2y^4 + 20x^3y^5 + 5x^3y^3$
Ex 11: Factor $x(y + 2) + 3(y + 2)$	Ex 12: Factor $x(x - 1) + 5(x - 1)$	Your Turn: Factor $x^2(y + 4) - 3y(y + 4)$
Ex 13: Factor $xy + 2x + 3y + 6$	Ex 14: Factor $ax - 2bx + ay - 2by$	Your Turn: Factor $ax^2 - x^2 + 2a - 2$
Ex 15: Factor $4ax - 4ab - 2bx + 2b^2$	Ex 16: Factor $3xy - 2y - 3x + 2$	Your Turn: Factor $3x^2 + 4xy - 3x - 4y$

Assignment: WKST