5.1 GREATEST COMMON FACTOR AND GROUPING

Remember the distributive property: $a(b+c) = ab + ac$

Example: $4x(2x + 3) = 8x^2 + 12x$

To factor a polynomial is to write it as a product. In factoring we always first check for the greatest common factor in each term and use the distributive property to rewrite the polynomial as a product. We can check our answer by multiplying.

Factor out the greatest common factor. Check by multiplying.

1. $6x + 18$
2. $20x^2 – 10x$
3. $-8x^5 – 3x^4 + 4x^3$
4. $x^5y^2 – x^3y^2 + x^4y^5 + x^2y^2$
5. $x(y + 3) + 4(y + 3)$
6. $w(x – 2) – (x – 2)$

Factor by Grouping: 4 Terms

7. $x^2 + 4x + 3x + 12$
8. $3x^2 – 3x –2x + 2$
9. $x^2 – 2x – x + 2$
10. $3x^3 + 18x^2 + 5x + 25$

You Try:

1. $8x^2 – 10x + 4$

2. $8x^5 + 5x^4 – 3x^3$

3. $-3x^4 – 6x^3 + 3x^2$

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

5. $4x(x - 9) – 3(x - 9)$

6. $x(x + 7) + (x + 7)$

7. $10x^2 – 25x + 4x – 10$

8. $y^3 + 8y^2 – 2y – 16$

9. $20x^3 – 4x^2 – 5x + 1$