Name _____ Date _____ Class _____

SKILL 66

Skills Readiness

Factor GCF from Polynomials

To factor the greatest common factor (GCF) from a polynomial:

Step 1: Identify the GCF. Consider the coefficients and the variable terms.
Step 2: Divide the GCF out of every term of the polynomial.
Step 3: Rewrite the expression in factored form.

Example 1: Factor $2a - 18b$.
Step 1: The GCF of 2 and 18 is 2. There are no variables in common so 2 is the GCF.
Step 2: Divide 2 out of each term: $2a$ divided by 2 is a and $-18b$ divided by 2 is $-9b$.
Step 3: $2a - 18b = 2(a - 9b)$

Example 2: Factor $18x^3 + 6x^2$.
Step 1: The largest integer that will divide evenly into 18 and 6 is 6. The largest power of x present in both terms is x^2. So, the GCF is $6x^2$.
Step 2: Divide $6x^2$ out of each term: $18x^3$ divided by $6x^2$ is $3x$ *and* $6x^2$ divided by $6x^2$ is 1.
Step 3: $18x^3 + 6x^2 = 6x^2(3x + 1)$

Practice on Your Own

Factor each polynomial.

1. $x^2 + 6x$ _____

2. $3x - 12$ _____

3. $15x^2 + 5x$ _____

4. $7x^2 - 14$ _____

5. $6x^2 + 5x$ _____

6. $4x^2 - 8$ _____

7. $12x^2 - 9x$ _____

8. $3x^3 - 3x$ _____

9. $5x^3 + x^2$ _____

10. $3x^3 - 6x^2$ _____

11. $x^4 + x^3$ _____

12. $2x^4 - 2x^2$ _____

Check

Factor each polynomial.

13. $x^2 - 5x$ _____

14. $20x + 5$ _____

15. $8x^2 - 16x$ _____

16. $12x^2 + 9$ _____

17. $10x^3 - x^2$ _____

18. $27x^3 + 18x$ _____

19. $x^3 + x^2$ _____

20. $2x^4 - 6x^2$ _____