Name_____ Class _____ Date _____

4-4 Reteaching

Factoring Quadratic Expressions

Problem

What is $6x^2 - 5x - 4$ in factored form?

$a = 6$, $b = -5$, and $c = -4$ — Find a, b, and c; they are the coefficients of each term.

$ac = -24$ and $b = -5$ — We are looking for factors with product ac and sum b.

Factors of –24	1, –24	–1,–24	2,–12	–2,12	3, –8	–3,8	4, –6	–4, 6
Sum of factors	–23	23	–10	10	–5	5	–2	2

The factors 3 and −8 are the combination whose sum is –5.

$\underbrace{6x^2 + 3x} - \underbrace{8x - 4}$ — Rewrite the middle term using the factors you found.

$3x(2x + 1) - 4(2x + 1)$ — Find common factors by grouping the terms in pairs.

$(3x - 4)(2x + 1)$ — Rewrite using the Distributive Property.

Check $(3x - 4)(2x + 1)$ You can check your answer by multiplying the factors together.

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

$6x^2 - 5x - 4$

Remember that not all quadratic expressions are factorable.

Exercises

Factor each expression.

1. $x^2 + 6x + 8$

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

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

4. $2x^2 - 11x + 5$

5. $2x^2 - 7x - 4$

6. $4x^2 + 16x + 15$

7. $x^2 - 5x - 14$

8. $7x^2 - 19x - 6$

9. $x^2 - x - 72$

10. $2x^2 + 9x + 7$

11. $x^2 + 12x + 32$

12. $4x^2 - 28x + 49$

13. $x^2 - 3x - 10$

14. $2x^2 + 9x + 4$

15. $9x^2 - 6x + 1$

16. $x^2 - 10x + 9$

17. $x^2 + 4x - 12$

18. $x^2 + 7x + 10$

19. $x^2 - 8x + 12$

20. $2x^2 - 5x - 3$

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

22. $3x^2 + 2x - 8$