

Factoring Trinomials

- Complete the model. Then write the factors and their product.

x	+	+	+	+	+
	+	+	+	+	+
	-	-	-	-	-
	-	-	-	-	-
	-	-	-	-	-

Write each trinomial in factored form.

- $x^2 + x - 30$ _____
- $m^2 + 9m + 20$ _____
- $c^2 - c - 72$ _____

- $d^2 - 7d + 12$ _____
- $y^2 + y - 156$ _____
- $f^2 - 2f - 48$ _____

For each polynomial, write all of the pairs of the third term, and then circle the pair that would successfully factor the polynomial.

- $n^2 - 8n + 15$ _____
- $t^2 - 121$ _____
- $s^2 + 5s + 4$ _____
- $q^2 - 2q - 35$ _____

Write each trinomial as a product of its factor. Use factoring patterns, graphing, or algebra tiles to assist you in your work.

- $g^2 - 3g - 40$ _____
- $h^2 + 6h - 40$ _____
- $j^2 + 22j + 40$ _____
- $k^2 - 39k - 40$ _____
- $x^2 - x - 12$ _____

- $y^2 - 7y - 18$ _____
- $a^2 - 9a + 14$ _____
- $x^2 - 5x - 6$ _____
- $x^2 - 8x + 15$ _____
- $p^2 + 18p + 45$ _____

This set of exercises includes all factoring patterns used throughout the chapter. Write each polynomial as a product of its factor.

1. $4x^3y - 20x^2y + 16xy$

2. $6y^3 - 18y^2 + 12y$

3. $x^2 - 18x + 81$

4. $(a + 3)(a^2 + 5a) - 6(a + 3)$

5. $5x^3 - 50x^2 + 45x$

6. $x^3 + 2x^2 - 36x - 72$

7. $-x^4 + 2x^2 + 8$

8. $64p^4 - 16$

9. $z^2 - 5z - 36$

10. $x^2 - 2x + 1$

11. $125x^2y - 5x^4y$

12. $2ax + ay + 2bx + by$

Answer Key

1. $(x + 4)(x - 3) = x^2 + x - 12$
2. $(x + 6)(x - 5)$
3. $(m + 5)(m + 4)$
4. $(c - 9)(c + 8)$
5. $(d - 4)(d - 3)$
6. $(y + 13)(y - 12)$
7. $(f - 8)(f + 6)$
8. 1, 15; -1, -15; 3, 5; -3, -5
9. -1, 121; 1, -121; -11, 11
10. -4, -1; 4, 1; 2, 2; -2, -2
11. -1, 35; 1, -35; -5, 7; 5, -7
12. $(g - 8)(g + 5)$
13. $(h + 10)(h - 4)$
14. $(j + 20)(j + 2)$
15. $(k - 40)(k + 1)$
16. $(x + 3)(x - 4)$
17. $(y - 9)(y + 2)$
18. $(a - 7)(a - 2)$
19. $(x - 6)(x + 1)$
20. $(x - 3)(x - 5)$
21. $(p + 3)(p + 15)$
22. $4xy(x - 1)(x - 4)$
23. $6y(y - 1)(y - 2)$
24. $(x - 9)^2$
25. $(a + 6)(a - 1)(a + 3)$
26. $5x(x - 1)(x - 9)$
27. $(x + 6)(x - 6)(x + 2)$
28. $-(x - 2)(x + 2)(x^2 + 2)$
29. $16(2p^2 + 1)(2p^2 - 1)$
30. $(z - 9)(z + 4)$
31. $(x - 1)^2$
32. $5x^2xy(5 - x)(5 + x)$
33. $(a + b)(2x + y)$