

Find the GCF of each expression. Then factor the expression.

1. $3a^2 + 9$

2. $25b^2 - 35$

3. $x^2 - 2x$

4. $5t^2 + 7t$

5. $14y^2 + 7y$

6. $27p^2 - 9p$

Factor each expression.

7. $x^2 + 3x + 2$

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

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

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

11. $y^2 + 15y + 36$

12. $x^2 + 22x + 40$

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

14. $x^2 - 13x + 12$

15. $r^2 - 11r + 18$

16. $x^2 - 10x + 24$

17. $d^2 - 12d + 27$

18. $x^2 - 13x + 36$

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

20. $x^2 + x - 20$

21. $x^2 - 3x - 40$

22. $c^2 + 2c - 63$

23. $x^2 + 10x - 75$

24. $t^2 - 7t - 44$

25. $3x^2 + 31x + 36$

26. $2x^2 - 19x + 24$

27. $5r^2 + 23r + 26$

28. $2m^2 - 11m + 15$

29. $5t^2 + 28t + 32$

30. $2x^2 - 27x + 36$

Factor each expression.

31. $3x^2 + 7x - 20$

34. $2z^2 + z - 28$

37. $x^2 + 2x + 1$

40. $4n^2 - 20n + 25$

43. $x^2 - 4$

32. $5y^2 + 12y - 32$

35. $3x^2 + 8x - 16$

38. $t^2 - 14t + 49$

41. $9x^2 + 48x + 64$

44. $c^2 - 64$

33. $7x^2 - 8x - 12$

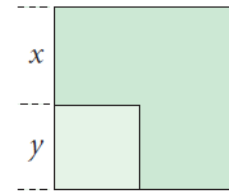
36. $28k^2 + 13k - 6$

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

42. $81z^2 + 36z + 4$

45. $9x^2 - 1$

49. Refer to the diagram at the right. Suppose you cut a small square from a square sheet of cardboard. Write an expression for the remaining area. Factor the expression.



Factor each expression completely.

51. $9x^2 - 36$

54. $64t^2 - 16$

57. $2a^2 - 16a + 32$

60. $4n^2 - 20n + 24$

63. $4x^2 - 22x + 10$

52. $18z^2 - 8$

55. $12x^2 + 36x + 27$

58. $3x^2 - 24x - 27$

61. $3y^2 + 24y + 45$

64. $\frac{1}{2}x^2 - \frac{1}{2}$

53. $12y^2 - 75$

56. $16x^2 - 80x + 100$

59. $18b^2 + 24b - 10$

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

65. $-6z^2 - 600$

Find the GCF of each expression. Then factor the expression.

1. $3a^2 + 9$ **3; $3(a^2 + 3)$** 2. $25b^2 - 35$ **5; $5(5b^2 - 7)$** 3. $x^2 - 2x$ **x ; $x(x - 2)$**
4. $5t^2 + 7t$ **t ; $t(5t + 7)$** 5. $14y^2 + 7y$ **$7y$; $7y(2y + 1)$** 6. $27p^2 - 9p$
 $9p$; $9p(3p - 1)$

7. $(x + 1)(x + 2)$ 14. $(x - 12)(x - 1)$ 21. $(x - 8)(x + 5)$
8. $(x + 2)(x + 3)$ 15. $(r - 2)(r - 9)$ 22. $(c + 9)(c - 7)$
9. $(x + 2)(x + 5)$ 16. $(x - 4)(x - 6)$ 23. $(x + 15)(x - 5)$
10. $(x + 2)(x + 8)$ 17. $(d - 3)(d - 9)$ 24. $(t - 11)(t + 4)$
11. $(y + 3)(y + 12)$ 18. $(x - 4)(x - 9)$ 25. $(3x + 4)(x + 9)$
12. $(x + 2)(x + 20)$ 19. $(x - 7)(x + 2)$ 26. $(x - 8)(2x - 3)$
13. $(x - 1)(x - 2)$ 20. $(x + 5)(x - 4)$ 27. $(r + 2)(5r + 13)$
28. $(m - 3)(2m - 5)$
29. $(t + 4)(5t + 8)$
30. $(x - 12)(2x - 3)$

31. $(x + 4)(3x - 5)$

32. $(y + 4)(5y - 8)$

33. $(x - 2)(7x + 6)$

34. $(z + 4)(2z - 7)$

35. $(x + 4)(3x - 4)$

36. $(4k + 3)(7k - 2)$

37. $(x + 1)^2$

38. $(t - 7)^2$

39. $(x - 9)^2$

40. $(2n - 5)^2$

41. $(3x + 8)^2$

42. $(9z + 2)^2$

43. $(x + 2)(x - 2)$

44. $(c + 8)(c - 8)$

45. $(3x + 1)(3x - 1)$

51. $9(x + 2)(x - 2)$

51. $9(x + 2)(x - 2)$

52. $2(3z + 2)(3z - 2)$

53. $3(2y + 5)(2y - 5)$

54. $16(2t + 1)(2t - 1)$

55. $3(2x + 3)^2$

56. $4(2x - 5)^2$

57. $2(a - 4)^2$

58. $3(x - 9)(x + 1)$

59. $2(3b - 1)(3b + 5)$

60. $4(n - 2)(n - 3)$

61. $3(y + 3)(y + 5)$

62. $-(x - 1)(x - 4)$

63. $2(x - 5)(2x - 1)$

64. $\frac{1}{2}(x + 1)(x - 1)$

65. $-6(z^2 + 100)$