

Simplify.

13. $30 \cdot 18 + 70 \cdot 18$

16. $(64 \cdot 81) + (36 \cdot 81)$

19. $5a + 2a$

22. $2n_c + (-8)n$

14. $11 \cdot 43 + 89 \cdot 43$

17. $(0.75)(32) + (0.25)(32)$

20. $7x + 6x$

23. $(-3)p + 7p$

15. $(13 \cdot 27) - (13 \cdot 27)$

18. $(3.6)(25) - (1.6)(25)$

21. $13y - 4y$

24. $(-8)n - 7n$

For each expression write an equivalent expression without parentheses.

25. $3(x + 2)$

28. $8(b - 5)$

31. $3(j - k)$

34. $(4x + 3)3$

26. $5(a + 7)$

29. $6(3n + 2)$

32. $2(3x - y)$

35. $(2x + 3y)5$

27. $4(n - 2)$

30. $7(5n + 3)$

33. $(3n + 7)2$

36. $(6m + 7n)2$

Simplify.

37. $3a + 7 + 5a$

40. $3p + 8 - 3p$

38. $6n + 1 + 3n$

41. $8y - 7y + 4$

39. $8n - 5 + 4n$

42. $y + 9z - 6z$

Sample

$$8x + y + 2x + 6y = (8x + 2x) + (y + 6y)$$

$$= 10x + 7y \quad \text{Answer}$$

43. $2a + b + 5a + 3b$

46. $5d - 3e + 4e - d$

44. $4c + d + 3c + 2d$

47. $7x + 5y - x - 5y$

45. $3s + 5t - t - 2s$

48. $6g - 3f + 8f - g$

B 49. $4(x + 3) + 3$

52. $2(n - 8) + 9$

55. $2 + (x + 3)5$

58. $9(n - 3) + 4n$

50. $3(n - 1) + 4$

53. $7 + 2(5 - x)$

56. $(y - 5)6 + 15$

59. $3(2x + y + 1)$

51. $3(a - 7) - 4$

54. $8 + 3(4 - y)$

57. $5(y + 3) + 7y$

60. $5(7y - 3z + 4)$

61. $9(a + b) + 4(3a + 2b)$

63. $6(r + 5) + 9(r - 2) - 4r$

65. $7(c + 2d + 8) + 3(9c - 2)$

62. $8(k + m) + 15(2k + 5m)$

64. $4(n + 7) + 5(n - 3) - 2n$

66. $4(5x + 3y + 6) + 14(2y - 1)$

In Exercises 67–70, represent each word phrase by a variable expression. Then simplify it.

67. Five times the sum of c and d , increased by twice the sum of $3c$ and d 68. Twice the sum of eleven and x , increased by three times the difference between x and seven69. Eight more than the sum of -5 and $15y$, increased by one half of the difference between $12y$ and 8 70. Six more than three times the sum of a and b , increased by five less than b