Tell what property the statement illustrates. (1.1)

1. \(3 \cdot 4 = 4 \cdot 3\)  
2. \(4 \cdot \frac{1}{4} = 1\)  
3. \((2 \cdot 3) \cdot 5 = 2 \cdot (3 \cdot 5)\)

Select and perform an operation to answer the question. (1.1)

4. What is the sum of 55 and \(-8\)?  
5. What is the difference of \(-2\) and \(-8\)?  
6. What is the product of 9 and \(-5\)?  
7. What is the quotient of \(-15\) and \(-\frac{3}{2}\)?

Simplify the expression. (1.2)

8. \(7x^2 + 5x - 9 + 3x^2 - 2x - 7\)  
9. \(3(x - 8) + 5(2x - 6)\)  
10. \(4(x^2 - x + 7) + 3(2x^2 + x)\)  
11. \(8(4x + 2y) - 2(5x - 8y)\)

Solve the equation. Check your solution. (1.3)

12. \(5x + 7 = 22\)  
13. \(3a + 5 = 7a + 21\)  
14. \(2(x + 8) = -2(x - 12)\)  
15. \(3(-2x + 8) = 4(x + 2) - 4\)  
16. \(\frac{9}{2}x - 2 = 3x + 4\)  
17. \(\frac{1}{2}x + \frac{5}{3} = \frac{2}{3}x - \frac{5}{6}\)

Solve the equation for \(y\). (1.4)

18. \(x + xy = 8\)  
19. \(6x - 4y = 12\)  
20. \(-x = 3y + 18\)  
21. \(6x + 5y + 30 = 0\)  
22. \(-xy + 8 = x\)  
23. \(x = 12 + xy\)

Solve the inequality. Then graph the solution. (1.6–1.7)

24. \(3(n - 4) < 9\)  
25. \(4 - 4x > 5(3 + x)\)  
26. \(\frac{1}{3}x + 8 \geq 12\)  
27. \(3x + 7 \geq 10\)  
28. \(4x - 2 < 6\) or \(3x + 1 > 22\)  
29. \(-5 < 2x + 1 < 15\)

Use the vertical line test to determine whether the relation is a function. (2.1)

30. yn

31. yn

32. yn

Tell which line is steeper. (2.2)

33. Line 1: through \((-3, 5)\) and \((0, -1)\)  
Line 2: through \((1, 10)\) and \((6, -14)\)  
34. Line 1: through \((4, 5)\) and \((8, 5)\)  
Line 2: through \((6, 3)\) and \((8, -4)\)

35. Line 1: through \((2, 3)\) and \((3, 6)\)  
Line 2: through \((0, 7)\) and \((2, 9)\)  
36. Line 1: through \((0, 0)\) and \((4, 2)\)  
Line 2: through \((-3, -2)\) and \((-4, -4)\)
Find the slope and $y$-intercept of the line. (2.3)

37. $y = 4x + 6$  
38. $y = -\frac{2}{3}x - 5$  
39. $y = 10$

40. $3x - 2y = 14$  
41. $x + 8y = 16$  
42. $9x + y = 0$

Write an equation of the line that passes through the given point and has the given slope. (2.4)

43. $(0, 7), m = 5$  
44. $(-6, 4), m = 0$  
45. $(5, 1), m = \frac{2}{3}$

46. $(4, -1), m = -\frac{2}{3}$  
47. $(5, 0), m = -4$  
48. $(-2, -1), m = -3$

Graph the inequality in a coordinate plane. (2.6)

49. $x \leq -3$  
50. $2y > -10$  
51. $y \geq 3x + 2$

52. $y < -4 - 2x$  
53. $3x + 4y > 12$  
54. $\frac{3}{2}x + \frac{1}{2}y > 1$

Graph the absolute value function. Then identify the vertex, tell whether the graph opens up or down, and tell whether the graph is wider, narrower, or the same width as the graph of $y = |x|$. (2.8)

55. $f(x) = -|x - 7| + 1$  
56. $f(x) = |x + 3| - 2$  
57. $f(x) = -|x| + 2$

58. $f(x) = |x + 2|$  
59. $f(x) = 2|x| + 2$  
60. $f(x) = -\frac{1}{2}|x| + 4$

Graph the system of linear inequalities. (3.3)

61. $y \geq 5$  
$\quad x \leq 2$  
62. $x + y \geq 4$  
$\quad 2x - y \leq 3$  
63. $5x + 3y \leq 6$  
$\quad 2x - 4y > 8$

64. $y > x - 5$  
$\quad y < 2x + 1$  
65. $x - y \geq 5$  
$\quad 3x + y \leq -8$  
66. $x > -6$  
$\quad x - y \geq 0$

Solve the system using either the linear combination method or the substitution method. (3.6)

67. $x + 2y + z = 2$
$\quad 2x - 3y + 2z = -10$
$\quad x + 3y + z = 4$

68. $x + y + z = 0$
$\quad 5x + 3y + z = 10$
$\quad x + y = -z$

69. $x + y + z = 10$
$\quad 2x + y - 2z = -7$
$\quad 6x + 4y - 2z = 6$

70. Size of House  In 1997, the chairman of an Oriental Holding Company was reported to have sold a property for $98.8 million. At $2,863 per square foot, it was the world’s most expensive house. How big was the house to the nearest square foot? (1.1)

71. Surface Area  Lake Superior, the largest of the Great Lakes, has a surface area of 20,600 square miles. This is 3300 square miles larger than five times the size of Lake Ontario, the smallest. What is the surface area of Lake Ontario? (1.5)