

Cumulative Review

For use after Chapters 1–4

Evaluate the expression for the given values of x and y . (1.2)

1. $\frac{x^2}{3y + 2}$ when $x = 3$ and $y = -5$

2. $x^3 + 2y^3$ when $x = -3$ and $y = 2$

3. $\frac{x + y}{x - y}$ when $x = 5$ and $y = -6$

4. $x^2 + 2x - 3y$ when $x = -4$ and $y = 2$

Solve the equation. (1.3)

5. $3(x - 2) = -4(-x + 7) + 18$

6. $\frac{1}{2}x + \frac{1}{3} = x + \frac{7}{3}$

7. $1.5x + 8 = 11 + 0.5x - 1$

8. $-(x - 2) + 3x = -3(x + 4) + 15$

Solve the inequality. (1.6)

9. $3x + 1 \leq 8x - 4$

10. $-5 > 3x + 1 > 7$

11. $2x + 4 \leq 8$ or $2x - 3 \geq 7$

12. $4x - 2 \geq 8$

13. $2x + 3 < 8$

14. $\frac{1}{2}x + 4 > 6$

Tell whether the relation is a function. (2.1)15.

x	1	2	4	5	5
y	2	3	3	4	-6

16.

x	-2	-1	3	4
y	0	0	0	0

17.

x	0	1	4	9	16
y	0	1	2	3	4

18.

x	0	1	1	4	4
y	0	1	-1	2	-2

19.

x	-2	-1	0	1	2
y	4	1	0	1	4

20.

x	-2	-1	0	1	2
y	-6	-3	1	3	6

Draw the line with the given information. (2.3)

21. $m = 3, b = -5$

22. $m = \frac{2}{3}, b = -5$

23. x -intercept is -2 , y -intercept is 4

24. x -intercept is 4 , y -intercept is -3

Write an equation of the line that has the given slope and y -intercept. (2.4)

25. $m = 5, b = -2$

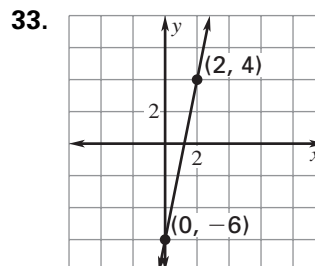
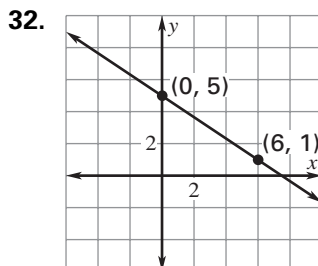
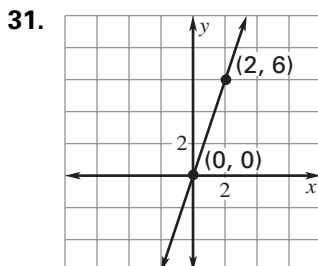
26. $m = -5, b = -3$

27. $m = \frac{1}{2}, b = 4$

28. $m = -\frac{2}{3}, b = 6$

29. $m = -\frac{2}{3}, b = -3$

30. $m = 0, b = 3$

Write an equation of the line. (2.4)

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Solve the system using the substitution method or the linear combination method. (3.2)

34. $x - 5y = 10$

$2x - 3y = 13$

37. $4x + 3y = 5$

$-6x - 2y = -5$

35. $3x - 4y = 20$

$-2x + 3y = -14$

38. $3x + 6y = 5$

$x + y = 1$

36. $-5x + 4y = 5$

$2x - 5y = -2$

39. $0.2x + 0.3y = 3.8$

$0.5x - 0.7y = 0.8$

Write the linear equation as a function of x and y . Then evaluate the function for the given values. (3.5)

40. $x - 6y - z = 12, f(4, 2)$

42. $2x + 3y + 2z = 8, f(-3, -6)$

44. $-3x + 6y - 2z = -10, f(2, 4)$

41. $-x - 2y + z = 8, f(-3, 2)$

43. $-2x + 5y - 3z = 6, f(9, 0)$

45. $-2x + 4y - 3z = 9, f(-3, 9)$

Use any algebraic method to solve the system. (3.6)

46. $5x + 2y - 2z = 6$

$-3x + 3y + z = 1$

$5x - 5y + z = -7$

47. $x + 2y + 3z = -10$

$2x - 2y + z = -9$

$4x + y + 3z = -5$

48. $2x + 3y - z = 7$

$-2x + 5y + 3z = -13$

$3x + 3y - 2z = 12$

Solve the matrix equation for x and y . (4.1)

49. $\begin{bmatrix} 3x & -9 \\ -8 & 7 \end{bmatrix} = \begin{bmatrix} 15 & y \\ -8 & 7 \end{bmatrix}$

51. $3x \begin{bmatrix} 3 & -4 \\ 2 & y \end{bmatrix} = \begin{bmatrix} 9 & -12 \\ 6 & 15 \end{bmatrix}$

50. $\begin{bmatrix} 4x & -3 \\ -2 & 8 \end{bmatrix} + \begin{bmatrix} 4 & 2 \\ -3 & 1 \end{bmatrix} = \begin{bmatrix} 16 & -1 \\ y & 9 \end{bmatrix}$

52. $\begin{bmatrix} 3 & 2 \\ 1 & -3 \end{bmatrix} + \begin{bmatrix} 5 & x \\ -3 & 7 \end{bmatrix} = \begin{bmatrix} 8 & 9 \\ -2 & y \end{bmatrix}$

Use Cramer's rule or an inverse matrix to solve the system. (4.3, 4.5)

53. $2x - y = 11$

$3x + 8y = 7$

54. $3x - 6y = 3$

$-5x - 8y = 4$

55. $x + 5y - 2z = 10$

$2x - 8y - 3z = 2$

56. **Tickets** Tickets to the Spring Concert cost \$3 for students and \$5 for adults. Sales totaled \$1530. Twice as many adult tickets as students tickets were sold. How many adult tickets were sold? (3.2)

57. **Kelvin** According to kinetic theory, -273 degrees Celsius is the temperature at which gas molecules would cease to move; this is called the absolute zero of temperature. In practice all gases, on cooling, liquefy or solidify before that temperature is reached. This temperature, -273°C , is taken as the zero point on the Kelvin scale, so Kelvin temperature is 273 higher than Celsius temperature. If the Kelvin temperature of a gas is 33 more than six times the Celsius temperature, what is the temperature of the gas in degrees Celsius? (4.3)