Chapter 1 Review Exercises

Study - GUIDE: A19:3
CH: 1-4.

1. Find the additive inverse of $-\frac{3}{4}$.

2. Let $x \in \{-4, -2, 0, 2\}$. For what values of x is $x > -1$ true?

3. Let $p \in \{-4, 0, 7\}$. Evaluate $-|p|$ for each element of the set.

4. Use the roster method to write the set of integers between -3 and 4.

5. Use set-builder notation to write the set of real numbers less than -3.

6. Write $[-2, 3]$ in set-builder notation.

7. Find $A \cup B$ given $A = \{1, 3, 5, 7\}$ and $B = \{2, 4, 6, 8\}$.

8. Find $A \cap B$ given $A = \{0, 1, 2, 3\}$ and $B = \{2, 3, 4, 5\}$.

9. Graph: $[-3, \infty)$

10. Graph: $\{x \mid x < 1\}$

11. Graph: $\{x \mid x \leq -3\} \cup \{x \mid x > 0\}$

12. Graph: $(-2, 4]$

13. Subtract: $-10 - (-3) - 8$

14. Divide: $-204 \div (-17)$

15. Simplify: $18 - |-12 + 8|$

16. Simplify: $-2 \cdot (4^2) \cdot (-3)^2$

17. Simplify: $-\frac{3}{8} + \frac{3}{5} - \frac{1}{6}$

18. Multiply: $\frac{3}{5}\left(-\frac{10}{21}\right)\left(-\frac{7}{15}\right)$

19. Divide: $-\frac{3}{8} \div \frac{3}{5}$

20. Simplify: $-4.07 + 2.3 - 1.07$

21. Divide: $-3.286 \div (-1.06)$

22. Simplify: $20 \div \frac{3^2 - 2^2}{3^2 + 2^2}$

23. Evaluate $2a^2 - \frac{3b}{a}$ when $a = -3$ and $b = 2$.

24. Evaluate $(a - 2b^2) \div (ab)$ when $a = 4$ and $b = -3$.

25. Use the Distributive Property to complete the statement.
$6x - 21y = ?(2x - 7y)$

26. Use the Commutative Property of Addition to complete the statement.
$3(x + y) = 3(? + x)$

27. Use the Commutative Property of Multiplication to complete the statement.
$(ab)14 = 14?$

28. Use the Associative Property of Addition to complete the statement.
$3 + (4 + y) = (3 + ?) + y$

29. Identify the property that justifies the statement.
$(-4) + 4 = 0$

30. Identify the property that justifies the statement.
$2(3x) = (2 \cdot 3)x$

31. Simplify: $-2(x - 3) + 4(2 - x)$

32. Simplify: $4y - 3[x - 2(3 - 2x) - 4y]$

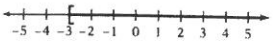
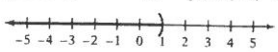
33. Translate and simplify "four times the sum of a number and four."

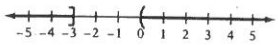
34. Translate and simplify "eight more than twice the difference between a number and two."

CHAPTER 1 REVIEW EXERCISES[1]

1. $\frac{3}{4}$ [1.3.1] **2.** 0, 2 [1.1.1] **3.** $-4, 0, -7$ [1.1.1] **4.** $\{-2, -1, 0, 1, 2, 3\}$ [1.1.2]

5. $\{x \mid x < -3\}$ [1.1.2] **6.** $\{x \mid -2 \le x \le 3\}$ [1.1.2] **7.** $\{1, 2, 3, 4, 5, 6, 7, 8\}$ [1.1.2] **8.** $\{2, 3\}$ [1.1.2]

9.  [1.1.2] **10.**  [1.1.2]

11.  [1.1.2] **12.**  [1.1.2] **13.** -15 [1.2.1]

14. 12 [1.2.1] **15.** 14 [1.2.1] **16.** -288 [1.2.1] **17.** $\frac{7}{120}$ [1.2.2] **18.** $\frac{2}{15}$ [1.2.2]

19. $-\frac{5}{8}$ [1.2.2] **20.** -2.84 [1.2.2] **21.** 3.1 [1.2.2] **22.** 52 [1.2.4] **23.** 20 [1.3.2]

24. $\frac{7}{6}$ [1.3.2] **25.** 3 [1.3.1] **26.** y [1.3.1] **27.** (ab) [1.3.1] **28.** 4 [1.3.1] **29.** The Inverse Property of Addition [1.3.1] **30.** The Associative Property of Multiplication [1.3.1]

31. $-6x + 14$ [1.3.3] **32.** $16y - 15x + 18$ [1.3.3] **33.** $4(x + 4)$; $4x + 16$ [1.4.1]

34. $2(x - 2) + 8$; $2x + 4$ [1.4.1] **35.** $2x + (40 - x) + 5$; $x + 45$ [1.4.1] **36.** $[2(9 - x) + 3] - (x + 1)$; $-3x + 20$ [1.4.1] **37.** The width of the rectangle: W; the length of the rectangle: $3W - 3$ [1.4.2]

38. The first integer: x; the second integer: $4x + 5$ [1.4.2]

Cumulative Review Exercises

1. Identify the property that justifies the statement. $(x + y) \cdot 2 = 2 \cdot (x + y)$

2. Solve: $3 - \frac{x}{2} = \frac{3}{4}$

3. Solve: $2[y - 2(3 - y) + 4] = 4 - 3y$

4. Solve: $\frac{1 - 3x}{2} + \frac{7x - 2}{6} = \frac{4x + 2}{9}$

5. Solve: $x - 3 < -4$ or $2x + 2 > 3$

6. Solve: $8 - |2x - 1| = 4$

7. Solve: $|3x - 5| < 5$

8. Simplify: $4 - 2(4 - 5)^3 + 2$

9. Evaluate $(a - b)^2 \div ab$ when $a = 4$ and $b = -2$.

10. Graph: $\{x \mid x < -2\} \cup \{x \mid x > 0\}$

11. Solve: $3x - 1 < 4$ and $x - 2 > 2$

12. Given $P(x) = x^2 + 5$, evaluate $P(-3)$.

13. Find the ordered-pair solution of $y = -\frac{5}{4}x + 3$ that corresponds to $x = -8$.

14. Find the slope of the line that contains the points $(-1, 3)$ and $(3, -4)$.

15. Find the equation of the line that contains the point $(-1, 5)$ and has slope $\frac{3}{2}$.

16. Find the equation of the line that contains the points $(4, -2)$ and $(0, 3)$.

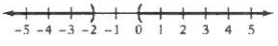
17. Find the equation of the line that contains the point $(2, 4)$ and is parallel to the line $y = -\frac{3}{2}x + 2$.

18. Find the equation of the line that contains the point $(4, 0)$ and is perpendicular to the line $3x - 2y = 5$.

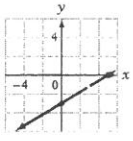
CUMULATIVE REVIEW EXERCISES

1. Commutative Property of Multiplication [1.3.1] **2.** $\frac{9}{2}$ [2.1.2] **3.** $\frac{8}{9}$ [2.1.2] **4.** $-\frac{1}{14}$ [2.1.2]

5. $\left\{x \mid x < -1 \text{ or } x > \frac{1}{2}\right\}$ [2.5.2] **6.** $\frac{5}{2}$ and $-\frac{3}{2}$ [2.6.1] **7.** $\left\{x \mid 0 < x < \frac{10}{3}\right\}$ [2.6.2] **8.** 8 [1.2.4]

9. -18 [1.3.2] **10.**  [1.1.2] **11.** $\varnothing$ [2.5.2] **12.** 14 [3.2.1]

13. $(-8, 13)$ [3.1.1] **14.** $-\frac{7}{4}$ [3.4.1] **15.** $y = \frac{3}{2}x + \frac{13}{2}$ [3.5.1] **16.** $y = -\frac{5}{4}x + 3$ [3.5.2]

17. $y = -\frac{3}{2}x + 7$ [3.6.1] **18.** $y = -\frac{2}{3}x + \frac{8}{3}$ [3.6.1] **19.**  [3.3.2]

Cumulative Review Exercises

1. Solve: $\frac{3}{2}x - \frac{3}{8} + \frac{1}{4}x = \frac{7}{12}x - \frac{5}{6}$

2. Find the equation of the line that contains the points $(2, -1)$ and $(3, 4)$.

3. Simplify: $3[x - 2(5 - 2x) - 4x] + 6$

4. Evaluate $a + bc \div 2$ when $a = 4$, $b = 8$, and $c = -2$.

5. Solve: $2x - 3 < 9$ or $5x - 1 < 4$

6. Solve: $|x - 2| - 4 < 2$

7. Solve: $|2x - 3| > 5$

8. Given $f(x) = 3x^3 - 2x^2 + 1$, evaluate $f(-3)$.

9. Find the range of $f(x) = 3x^2 - 2x$ if the domain is $\{-2, -1, 0, 1, 2\}$.

10. Given $F(x) = x^2 - 3$, find $F(2)$.

11. Given $f(x) = 3x - 4$, write $f(2 + h) - f(2)$ in simplest form.

12. Graph: $\{x \mid x \leq 2\} \cap \{x \mid x > -3\}$

13. Find the equation of the line that contains the point $(-2, 3)$ and has slope $-\frac{2}{3}$.

14. Find the equation of the line that contains the point $(-1, 2)$ and is perpendicular to the line $2x - 3y = 7$.

15. Find the distance between the points $(-4, 2)$ and $(2, 0)$.

16. Find the midpoint of the line connecting the points $(-4, 3)$ and $(3, 5)$.

17. Graph $2x - 5y = 10$ by using the slope and y-intercept.

18. Graph the solution set of the inequality $3x - 4y \geq 8$.

19. Solve by substitution:
$$3x - 2y = 7$$
$$y = 2x - 1$$

20. Solve by the addition method:
$$3x + 2z = 1$$
$$2y - z = 1$$
$$x + 2y = 1$$

21. Evaluate the determinant: $\begin{vmatrix} 2 & -5 & 1 \\ 3 & 1 & 2 \\ 6 & -1 & 4 \end{vmatrix}$

22. Solve by graphing:
$$5x - 2y = 10$$
$$3x + 2y = 6$$

23. Solve by using Cramer's Rule:
$$4x - 3y = 17$$
$$3x - 2y = 12$$

24. Graph the solution set:
$$3x - 2y \geq 4$$
$$x + y < 3$$

19. Graph $3x - 5y = 15$ by using the x- and y-intercepts.

20. Graph the line that passes through the point $(-3, 1)$ and has slope $-\frac{3}{2}$.

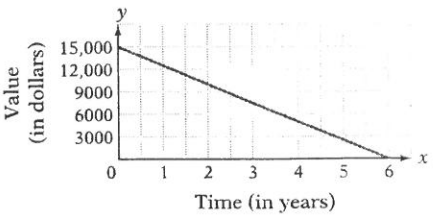
21. Graph the solution set of $3x - 2y \geq 6$.

22. **Coins** A coin purse contains coins with a value of \$1.60. The purse contains nickels and quarters. There are three times as many nickels as quarters. Find the number of nickels in the purse.

23. **Uniform Motion** Two planes are 1800 mi apart and are traveling toward each other. One plane is traveling twice as fast as the other plane. The planes will meet in 3 h. Find the speed of each plane.

24. **Mixture Problem** A grocer combines coffee that costs \$8.00 per pound with coffee that costs \$3.00 per pound. How many pounds of each should be used to make 80 lb of a blend that costs \$5.00 per pound?

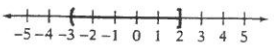
25. **Depreciation** The relationship between the depreciated value of a truck for income tax purposes and its age in years is shown in the graph at the right. Write the equation for the line that represents the depreciated value of the truck. Write a sentence that explains the meaning of the slope in the context of this exercise.



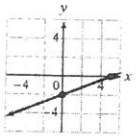
CUMULATIVE REVIEW EXERCISES

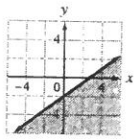
1. $-\frac{11}{28}$ [2.1.1] **2.** $y = 5x - 11$ [3.5.2] **3.** $3x - 24$ [1.3.3] **4.** -4 [1.3.2]

5. $\{x \mid x < 6\}$ [2.5.2] **6.** $\{x \mid -4 < x < 8\}$ [2.6.2] **7.** $\{x \mid x > 4 \text{ or } x < -1\}$ [2.6.2] **8.** -98 [3.2.1]

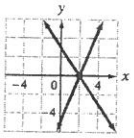
9. $\{0, 1, 5, 8, 16\}$ [3.2.1] **10.** 1 [3.2.1] **11.** $3h$ [3.2.1] **12.**  [1.1.2]

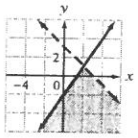
13. $y = -\frac{2}{3}x + \frac{5}{3}$ [3.5.1] **14.** $y = -\frac{3}{2}x + \frac{1}{2}$ [3.6.1] **15.** $2\sqrt{10}$ [3.1.2] **16.** $\left(-\frac{1}{2}, 4\right)$ [3.1.2]

17.  [3.4.2]

18.  [3.7.1]

19. $(-5, -11)$ [4.1.2] **20.** $(1, 0, -1)$ [4.2.2]

21. 3 [4.3.1] **22.**  [4.1.1]

23. $(2, -3)$ [4.3.2] **24.**  [4.5.1]

25. There are 16 nickels in the purse. [2.2.1] **26.** The amount of water that should be added is 60 ml. [2.4.2]

27. The rate of the wind is 12.5 mph. [4.4.1] **28.** The cost per pound of steak is \$5. [4.4.2] **29.** The lower and upper limits of the resistor are 10,200 ohms and 13,800 ohms. [2.6.3] **30.** The slope is 40. The account executive earns \$40 for each \$1000 of sales. [3.4.1]