Page 67 -69 answers

SKILL PRACTICE

A 1. **VOCABULARY** Copy and complete: A number is a(n) _?_ if it can be written
in the form $\frac{a}{b}$ where a and b are integers and $b \neq 0$. **rational number**

2. **VOCABULARY** What is the opposite of -2? **2**

3. ★ **WRITING** *Describe* the difference between whole numbers and
positive integers. **Zero is in the set of whole numbers, but not in the set of positive integers.**

4. ★ **WRITING** For a negative number x, is the absolute value of x a *positive
number* or a *negative number*? *Explain.* **Positive number; the absolute value of a negative
number is always positive.**

1 **GRAPHING AND COMPARING INTEGERS** Graph the numbers on a number
line. Then tell which number is greater. **5–13. Check students' graphs.**

3
5. 0 and 7 **7**   6. 0 and -4 **0**   7. -5 and -6 **-5**

8. -2 and -3 **-2**   9. 5 and -2 **5**   10. -12 and 8 **8**

11. -1 and -5 **-1**   12. 3 and -13 **3**   13. -20 and -2 **-2**

CLASSIFYING AND ORDERING NUMBERS Tell whether each number in the list is a whole number, an integer, or a rational number. Then order the numbers from least to greatest. **14–22. See margin.**

14. 3, −5, −2.4, 1

15. 1.6, 1, −4, 0

16. 0.25, −0.5, 0.2, −2

17. $-\frac{2}{3}$, −0.6, −1, $\frac{1}{3}$

18. −0.01, 0.1, 0, $-\frac{1}{10}$

19. 16, −1.66, $\frac{5}{3}$, −1.6

20. −2.7, $\frac{1}{2}$, 0.3, −7

21. −4.99, 5, $\frac{16}{3}$, −5.1

22. $-\frac{3}{5}$, −0.4, −1, −0.5

**FINDING OPPOSITES AND ABSOLUTE VALUES** For the given value of a, find $-a$ and $|a|$.

23. $a = 6$ −6, 6

24. $a = -3$ 3, 3

25. $a = -18$ 18, 18

26. $a = 0$ 0, 0

27. $a = 13.4$ −13.4, 13.4

28. $a = 2.7$ −2.7, 2.7

(29.) $a = -6.1$ 6.1, 6.1

30. $a = -7.9$ 7.9, 7.9

31. $a = -1\frac{1}{9}$ $1\frac{1}{9}, 1\frac{1}{9}$

32. $a = -\frac{5}{6}$ $\frac{5}{6}, \frac{5}{6}$

33. $a = \frac{3}{4}$ $-\frac{3}{4}, \frac{3}{4}$

34. $a = 1\frac{1}{3}$ $-1\frac{1}{3}, 1\frac{1}{3}$

ANALYZING CONDITIONAL STATEMENTS Identify the hypothesis and the conclusion of the conditional statement. Tell whether the statement is *true* or *false*. If it is false, give a counterexample.

35. If a number is a positive integer, then the number is a whole number.
Hypothesis: a number is a positive integer, conclusion: the number is a whole number; true.
36. If a number is negative, then its absolute value is negative.

37. If a number is positive, then its opposite is positive.

38. If a number is an integer, then the number is a rational number.
Hypothesis: a number is an integer, conclusion: the number is a rational number; true.
39. ★ **MULTIPLE CHOICE** Which number is a whole number? A

Ⓐ $\left|-\frac{18}{9}\right|$　　Ⓑ $-\frac{4}{3}$　　Ⓒ 1.6　　Ⓓ −(−7.963)

ERROR ANALYSIS *Describe* and correct the error in the statement. **40, 41. See margin.**

40.
The numbers −(−2), −4, −|8|, and −0.3 are negative numbers. ✗

41.
The numbers |−3.4|, −(−8), −|−0.2|, and 0.87 are positive numbers. ✗

EVALUATING EXPRESSIONS Evaluate the expression when $x = -0.75$.

42. $-x$ 0.75

43. $|x| + 0.25$ 1

44. $|x| - 0.75$ 0

45. $1 + |-x|$ 1.75

46. $2 \cdot (-x)$ 1.5

47. $(-x) \cdot 3$ 2.25

48. $|x| + |x|$ 1.5

49. $-x + |x|$ 1.5

50. ★ **MULTIPLE CHOICE** Which number is a solution of $|x| + 1 = 1.3$? B

Ⓐ −2.3　　Ⓑ −0.3　　Ⓒ 1.3　　Ⓓ 2.3

51. CHALLENGE What can you conclude about the opposite of the opposite of a number? *Explain* your reasoning. It is the original number. *Sample answer:* The opposite of *a* is −*a* and the opposite of −*a* is *a*, which is the original number.

52. CHALLENGE For what values of *a* is the opposite of *a* greater than *a*? less than *a*? equal to *a*? See margin.

59. ★ **EXTENDED RESPONSE** A star's apparent magnitude measures how bright the star appears to a person on Earth. A star's absolute magnitude measures its brightness if it were a distance of 33 light-years, or about 194 trillion miles, from Earth. The greater the magnitude, the dimmer the star.

Star	Arcturus	Achernar	Canopus	Capella	Sirius	Sun
Apparent magnitude	−0.04	0.46	−0.72	0.08	−1.46	−26.72
Absolute magnitude	0.2	−1.3	−2.5	0.4	1.4	4.8

Orion Constellation

a. Order Order the stars in the table from brightest to dimmest when viewed from Earth. Then order the stars from brightest to dimmest if they were 33 light-years from Earth.

b. Compare The star Rigel has an apparent magnitude of 0.12 and an absolute magnitude of −8.1. *Compare* its brightness with the Sun's brightness using both apparent magnitude and absolute magnitude.

c. Analyze Can you use the apparent magnitudes of two stars to predict which star is brighter in terms of absolute magnitude? *Explain* your answer using a comparison of the apparent and absolute magnitudes of two stars in the table.

Ⓒ **60. CHALLENGE** In an academic contest, the point values of the questions are given by the expression $50x$ where $x = 1, 2, 3,$ and 4. You earn $50x$ points for a correct answer to a question and $-(50x)$ points for an incorrect answer. Order from least to greatest all the possible points you can earn when answering a question. **−200, −150, −100, −50, 50, 100, 150, 200**

MIXED REVIEW

Add. *(p. 914)*

61. $\frac{1}{2} + \frac{1}{3}$ **$\frac{5}{6}$**

62. $\frac{5}{6} + \frac{1}{6}$ **1**

63. $2\frac{1}{2} + 1\frac{3}{4}$ **$4\frac{1}{4}$**

Find the perimeter of the triangle or rectangle. *(p. 924)*

64.
5.8 cm, 4.2 cm, 6.3 cm, 16.3 cm

65.
$1\frac{1}{3}$ ft, $2\frac{1}{4}$ ft, 3 ft, $6\frac{7}{12}$ ft

66.
3.7 m, 5.1 m, 17.6 m
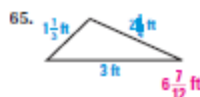
Check whether the given number is a solution of the inequality. *(p. 21)*

67. $x + 2 < 3$; 2 **not a solution**
68. $y - 8 < 6$; 13 **solution**
69. $9 - 2z \le 3$; 3 **solution**

70. $2y + 3 \ge 14$; 5 **not a solution**
71. $3 < 7x - 4$; 1 **not a solution**
72. $2a \ge 15$; 7 **not a solution**

Make a table for the function. Identify the range of the function. *(p. 43)* **73–75. See margin.**

73. $y = x - 3$
Domain: 5, 8, 14, 30

74. $y = 1.5x$
Domain: 0, 2, 6, 10

75. $y = 2x - 3$
Domain: 2, 4, 7, 11

EXTRA PRACTICE for Lesson 2.1, p. 939   ⊙ **ONLINE QUIZ** at classzone.com