
 Answers to Unit 1

SECTION 1 Pages 17-18

Example 2	a. $5 > -13$	b. $-8 > -22$	Example 4	a. 9	b. -62
Example 6	$ -5 = 5$	$- -9 = -9$			

Pages 19-20

1. $3 < 5$ 3. $-2 > -5$ 5. $-16 < 1$ 7. $3 > -7$ 9. $-11 < -8$ 11. $-1 > -6$ 13. $0 > -3$
 15. $6 > -8$ 17. $-14 < 16$ 19. $35 > 28$ 21. $-42 < 27$ 23. $21 > -34$ 25. $-27 > -39$
 27. $-87 < 63$ 29. $68 > -79$ 31. $-62 > -84$ 33. $94 > 83$ 35. $59 > -67$ 37. $-93 < -55$
 39. $-88 < 57$ 41. $0 < 129$ 43. $-131 < 101$ 45. $-194 < -180$ 47. -16 49. 3 51. -45
 53. 88 55. 2 57. 6 59. 5 61. 1 63. -8 65. 0 67. 19 69. 22 71. -20 73. -18
 75. 23 77. -27 79. -41 81. 25 83. 30 85. -34 87. -45 89. 36 91. 61 93. -52
 95. -93 97. 119

SECTION 2 Pages 21-24

Example 2	$-154 + (-37)$ -191	Example 4	$-36 + 17 + (-21)$ $-19 + (-21)$ -40
Example 6	$-5 + (-2) + 9 + (-3)$ $-7 + 9 + (-3)$ $2 + (-3)$ -1	Example 8	$-8 - 14$ $-8 + (-14)$ -22
Example 10	$3 - (-4) - 15$ $3 + 4 + (-15)$ $7 + (-15)$ -8	Example 12	$4 - (-3) - 12 - (-7) - 20$ $4 + 3 + (-12) + 7 + (-20)$ $7 + (-12) + 7 + (-20)$ $-5 + 7 + (-20)$ $2 + (-20)$ -18
Example 14	$17 - 10 - 2 - (-6) - 9$ $17 + (-10) + (-2) + 6 + (-9)$ $7 + (-2) + 6 + (-9)$ $5 + 6 + (-9)$ $11 + (-9)$ 2		

Pages 25-26

1. -2 3. 20 5. -11 7. -9 9. -3 11. 1 13. -5 15. -30 17. 9 19. 1 21. -10
 23. -28 25. -41 27. -392 29. 8 31. -7 33. -9 35. 9 37. -3 39. 18 41. -9
 43. 11 45. 0 47. 11 49. 2 51. -138 53. -8 55. -337

SECTION 3 Pages 27-30

Example 2	$(-3) \cdot 4 \cdot (-5)$ $(-12) \cdot (-5)$ 60	Example 4	$-38 \cdot 51$ -1938
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Example 6

$$\begin{aligned} & -6 \cdot 8 \cdot (-11) \cdot 3 \\ & -48 \cdot (-11) \cdot 3 \\ & 528 \cdot 3 \\ & 1584 \end{aligned}$$

Example 10

$$\begin{aligned} & (-135) \div (-9) \\ & 15 \end{aligned}$$

Example 14

$$\begin{aligned} & 84 \div (-6) \\ & -14 \end{aligned}$$

Example 16

Strategy To find the difference, subtract the average temperature throughout the earth's stratosphere (-70°) from the average temperature on earth's surface (57°).

Solution

$$\begin{aligned} & 57 - (-70) \\ & 57 + 70 \\ & 127 \end{aligned}$$

The difference is 127°F .

Example 8

$$\begin{aligned} & -7(-8)(9)(-2) \\ & 56(9)(-2) \\ & 504(-2) \\ & -1008 \end{aligned}$$

Example 12

$$\begin{aligned} & -72 \div 4 \\ & -18 \end{aligned}$$

Example 18

Strategy To find the average daily low temperature:
 \triangleright Add the seven temperature readings.
 \triangleright Divide by 7.

Solution

$$\begin{aligned} & -6 + (-7) + 1 + 0 + (-5) + \\ & \quad (-10) + (-1) \\ & -13 + 1 + 0 + (-5) + (-10) + (-1) \\ & -12 + 0 + (-5) + (-10) + (-1) \\ & -12 + (-5) + (-10) + (-1) \\ & -17 + (-10) + (-1) \\ & -27 + (-1) \\ & -28 \\ & -28 \div 7 = -4 \end{aligned}$$

The average daily low temperature was -4° .

Pages 31–33

1. 42 3. -24 5. 6 7. 18 9. -20 11. -16 13. 25 15. 0 17. -72 19. -102 21. 140
 23. -228 25. -320 27. -156 29. -70 31. 162 33. 120 35. 36 37. 192 39. -108
 41. -2100 43. 0 45. -251,636 47. -2 49. 8 51. 0 53. -9 55. -9 57. 9 59. -24
 61. -12 63. 31 65. 17 67. 15 69. -13 71. -18 73. 19 75. 13 77. -19 79. 17
 81. 26 83. 23 85. 25 87. -34 89. 11 91. -13 93. 13 95. 12 97. -14 99. 290

Page 34

1. The temperature was -1°C . 3. Your score was -15 points. 5. The difference in elevation is 20,602 ft. 7. The difference in elevation is 30,314 ft. 9. The average daily low temperature was -3° .

SECTION 4 Pages 35–40

Example 2

$$\begin{array}{r} 0.16 \\ 25 \overline{)4.00} \\ \underline{-25} \\ 150 \\ \underline{-150} \\ 0 \end{array}$$

$$\frac{4}{25} = 0.16$$

Example 4

$$\begin{array}{r} 0.444 \\ 9 \overline{)4.000} \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 40 \\ \underline{-36} \\ 4 \end{array}$$

$$\frac{4}{9} = 0.\overline{4}$$

Example 6

The LCM of 9 and 12 is 36.

$$\frac{5}{9} - \frac{11}{12} = \frac{20}{36} - \frac{33}{36} = \frac{20}{36} + \frac{-33}{36} =$$

$$\frac{20 - 33}{36} = \frac{-13}{36} = -\frac{13}{36}$$

Example 10

$$\begin{array}{r} 3.907 \\ 4.9 \\ + 6.63 \\ \hline 15.437 \end{array}$$

Example 14

$$2.7 + (-9.44) + 6.2$$

$$-6.74 + 6.2$$

$$-0.54$$

Example 18

The quotient is positive.

$$-\frac{3}{8} \div -\frac{5}{12} = \frac{3}{8} \times \frac{12}{5} =$$

$$\frac{3 \cdot 12}{8 \cdot 5} = \frac{3 \cdot \overset{1}{\cancel{2}} \cdot \overset{1}{\cancel{2}} \cdot 3}{\overset{1}{\cancel{2}} \cdot \overset{1}{\cancel{2}} \cdot 2 \cdot 5} = \frac{9}{10}$$

Example 22

$$3.44 \times (-1.7) \times 0.6$$

$$(-5.848) \times 0.6$$

$$-3.5088$$

Example 8

The LCM of 8, 6 and 2 is 24.

$$-\frac{7}{8} - \frac{5}{6} + \frac{1}{2} = \frac{-21}{24} - \frac{20}{24} + \frac{12}{24} =$$

$$\frac{-21}{24} + \frac{-20}{24} + \frac{12}{24} = \frac{-21 - 20 + 12}{24} =$$

$$\frac{-29}{24} = -1\frac{5}{24}$$

Example 12

$$\begin{array}{r} 67.910 \\ - 16.127 \\ \hline 51.783 \end{array}$$

$$16.127 - 67.91 = -51.783$$

Example 16

The product is negative.

$$-\frac{7}{12} \times \frac{9}{14} = -\frac{7 \cdot 9}{12 \cdot 14} =$$

$$-\frac{\overset{1}{\cancel{7}} \cdot 3}{\overset{1}{\cancel{2}} \cdot \overset{1}{\cancel{2}} \cdot 3 \cdot 2 \cdot \overset{1}{\cancel{7}}} = -\frac{3}{8}$$

Example 20

$$\begin{array}{r} 5.44 \\ \times 3.8 \\ \hline 4352 \\ 1632 \\ \hline 20.672 \end{array}$$

$$-5.44 \times 3.8 = -20.672$$

Example 24

$$\begin{array}{r} 0.231 \\ 1.7 \overline{)0.3940} \\ \underline{-34} \\ 54 \\ \underline{-51} \\ 30 \\ \underline{-17} \\ 13 \end{array}$$

$$-0.394 \div 1.7 \approx -0.23$$

Pages 41–44

1. $0.\overline{3}$ 3. 0.25 5. 0.4 7. $0.1\overline{6}$ 9. $0.12\overline{5}$ 11. $0.2\overline{}$ 13. $0.4\overline{5}$ 15. $0.58\overline{3}$ 17. $0.2\overline{6}$ 19. $0.562\overline{5}$
 21. $0.3\overline{8}$ 23. 0.05 25. 0.24 27. $0.2\overline{3}$ 29. 0.225 31. $0.36\overline{1}$ 33. $0.68\overline{1}$ 35. $0.458\overline{3}$ 37. $0.1\overline{5}$
 39. $0.0\overline{81}$ 41. $1\frac{1}{12}$ 43. $-\frac{5}{24}$ 45. $-\frac{19}{24}$ 47. $\frac{5}{26}$ 49. $\frac{7}{24}$ 51. 0 53. $-\frac{7}{16}$ 55. $\frac{11}{24}$ 57. 1
 59. $1\frac{3}{8}$ 61. $\frac{169}{315}$ 63. -38.8 65. -6.192 67. 13.355 69. 4.676 71. -10.03 73. -37.19
 75. -17.5 77. 853.2594 79. $-\frac{3}{8}$ 81. $\frac{1}{10}$ 83. $-\frac{4}{9}$ 85. $-\frac{7}{30}$ 87. $\frac{2}{27}$ 89. $-1\frac{1}{9}$ 91. $-4\frac{19}{32}$
 93. $3\frac{1}{8}$ 95. $\frac{2}{3}$ 97. 4.164 99. 4.347 101. -4.028 103. -2.22 105. 12.26448 107. -274.44
 109. -2.59 111. -5.11 113. -2060.55 115. 4781.29

SECTION 5

Pages 45-48

Example 2 $-6^3 = -(6 \cdot 6 \cdot 6) = -216$

Example 6 $(3^3)(-2)^3 = (3)(3)(3) \cdot (-2)(-2)(-2) = 27(-8) = -216$

Example 10 $-3(0.3)^3 = -3(0.3)(0.3)(0.3) = -0.9(0.3)(0.3) = -0.27(0.3) = -0.081$

Example 14 $36 \div (8 - 5)^2 - (-3)^2 \cdot 2$
 $36 \div (3)^2 - (-3)^2 \cdot 2$
 $36 \div 9 - 9 \cdot 2$
 $4 - 9 \cdot 2$
 $4 - 18$
 -14

Example 18 $\frac{5}{8} \div \left(\frac{1}{3} - \frac{3}{4}\right) + \frac{7}{12}$
 $\frac{5}{8} \div \left(\frac{-5}{12}\right) + \frac{7}{12}$
 $\frac{5}{8} \cdot \left(-\frac{12}{5}\right) + \frac{7}{12}$
 $-\frac{3}{2} + \frac{7}{12}$
 $-\frac{18}{12} + \frac{7}{12}$
 $-\frac{11}{12}$

Example 4 $(-3)^4 = (-3)(-3)(-3)(-3) = 81$

Example 8 $\left(-\frac{2}{5}\right)^2 = \left(-\frac{2}{5}\right)\left(-\frac{2}{5}\right) = \frac{4}{25}$

Example 12 $18 - 5[8 - 2(2 - 5)] \div 10$
 $18 - 5[8 - 2(-3)] \div 10$
 $18 - 5[8 + 6] \div 10$
 $18 - 5[14] \div 10$
 $18 - 70 \div 10$
 $18 - 7$
 11

Example 16 $(6.97 - 4.72)^2 \times 4.5 \div 0.05$
 $(2.25)^2 \times 4.5 \div 0.05$
 $5.0625 \times 4.5 \div 0.05$
 $22.78125 \div 0.05$
 455.625

Pages 49-50

1. 36 3. -49 5. 9 7. 81 9. $\frac{1}{4}$ 11. 0.09 13. 12 15. 0.216 17. -12 19. 16 21. -864
 23. -1008 25. 3 27. -77,760 29. 9 31. 12 33. 1 35. 13 37. -36 39. 13 41. 4
 43. 15 45. -1 47. 4 49. 0.51 51. 1.7 53. $\frac{1}{4}$ 55. $\frac{17}{48}$

REVIEW/TESTS

Pages 51-52

- 1.1a $-2 > -40$ 1.1b $-1 < 0$ 1.2a 4 1.2b -4 2.1a -3 2.1b -16 2.2a -14 2.2b 4
 3.1a -48 3.1b 90 3.2a -9 3.2b 17 3.3a The temperature is 7°C . 3.3b The average low temperature was -2° .
 4.1a 0.85 4.1b $0.\bar{7}$ 4.2a $\frac{1}{15}$ 4.2b -6.881 4.3a $-\frac{1}{2}$ 4.3b -5.3578 5.1a -108
 5.1b 12 5.2a 9 5.2b 8

Pages 53-54

- 1.1a d 1.1b b 1.2a a 1.2b c 2.1a a 2.1b c 2.2a d 2.2b c 3.1a b 3.1b a 3.2a d
 3.2b b 3.3a a 3.3b d 4.1a b 4.1b d 4.2a c 4.2b c 4.3a a 4.3b b 5.1a b 5.1b d
 5.2a a 5.2b b