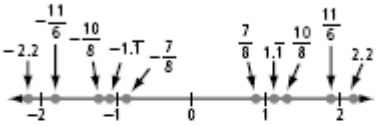
MathLinks 9 Practice and Homework Book
Chapter 2 Answers

2 Get Ready

1. a) 152.85714 b) 272.430 c) 390.166 00
2. It is less than 349 since we are multiplying by a number less than 1.
3. a) $\frac{3}{4}$, 0.75 b) $\frac{4}{10}$, 0.4
4. a) $\frac{7}{10}$, $\frac{3}{4}$ b) $\frac{2}{7}$, $\frac{1}{3}$, $\frac{3}{8}$
5. a) $\frac{1}{5} + \frac{3}{10}$ b) $\frac{2}{3} - \frac{3}{5}$ 6. a) $\frac{7}{8}$ b) $\frac{1}{12}$
7. a) $\frac{5}{8}$ b) $\frac{33}{8}$ or $4\frac{1}{8}$ 8. a) 10 b) $\frac{10}{3}$ or $3\frac{1}{3}$

2.1 Comparing and Ordering Rational Numbers

1. a) 2.1, $-\frac{3}{2}$, 3, -55
   b) 3.0, $\sqrt{9}$, $\frac{-21}{-7}$, $\frac{3}{1}$
2. a) $-\frac{14}{5}$, -2.1, $-\frac{3}{4}$, $\frac{0}{3}$, $\frac{3}{4}$, $\frac{5}{4}$, $\frac{6}{4}$, 1.8
   b) $-\frac{3}{4}$, $\frac{3}{4}$ c) $\frac{3}{4}$
3. a) C b) B c) A d) E e) D
   f) Example: I estimated where the rational number would go on the number line, then identified the related letter.
4. a)–b)



5. a) $-\frac{3}{2}$ b) $6.\overline{8}$ c) $2\frac{1}{5}$
6. a) 1.125, $-1.\overline{6}$, $0.\overline{54}$
   b) -1.7, $-1\frac{2}{3}$, 0.511, $\frac{6}{11}$, $\frac{9}{8}$
7. a) $0.8\overline{3}$, -2.4, -1.75
   b) $\frac{5}{6}$, 0.7, $-1\frac{3}{4}$, -2.1. $-\frac{12}{5}$
8. Examples: a) $\frac{-6}{8}$ b) $-\frac{2}{3}$ c) $\frac{3}{2}$ d) $-\frac{10}{6}$
9. Examples: a) $-\frac{5}{8}$ b) $\frac{7}{9}$ c) $-\frac{1}{4}$ d) $-\frac{8}{7}$
10. a) $\frac{1}{3}$ b) $\frac{3}{5}$ c) $-1\frac{1}{6}$ d) $-\frac{3}{4}$
11. a) $\frac{2}{3}$ b) $-\frac{11}{12}$ c) $-\frac{7}{4}$ d) $-2\frac{5}{6}$
12. a) 0.25, 0.125; Example: 0.13
    b) $-0.\overline{6}$, -0.8; Example: -0.7
13. a) 6.5 °C, 0.1 °C, −15.7 °C, −17.0 °C, −22.1 °C, −23.2 °C, −23.6 °C, −32.2 °C
    b) −22.2 °C
14. a) > b) > c) < d) =

2.2 Problem Solving With Rational Numbers in Decimal Form

1. adding 2. negative 3. positive
4. a) first b) multiply c) subtract
5. a) 3, 2.5 b) −18, −17.87 c) −14, −13.84 d) 7, 6.79
6. a) 24, 26.66 b) −5, −5.2 c) −36, −34.71
7. a) −24.96 b) 5.154 c) −16.765
8. a) 11.2 b) −14.4 c) −14.3 d) 10.8 e) −85.548 f) 64.49
9. 0
10. a) −6.9 b) −9.8 c) −2.2 d) −7.5
11. a) −0.73 b) 0.25
12. a) Example: −12.7 − 6.9 b) 19.6 °C
13. a) Example:
    $[-0.5(3 \times 60)] + 0.7[(1 \times 60) + 15]$
    b) −37.5 m

2.3 Problem Solving With Rational Numbers in Fraction Form

1. e) number line
2. a) adding the opposite
3. b) improper fractions
4. d) positive fractions
5. c) multiplication and division
6. a) $-1\frac{1}{2}$, -1 b) 1, $1\frac{1}{6}$
   c) 1, $1\frac{3}{4}$ d) $7\frac{1}{2}$, $7\frac{2}{3}$
7. a) -1, $-\frac{2}{5}$ b) $\frac{1}{4}$, $\frac{1}{6}$
   c) $\frac{1}{2}$, $\frac{5}{14}$ d) -2, $-1\frac{7}{8}$
8. a) 1, $1\frac{1}{6}$
   b) -1, $-1\frac{1}{11}$
   c) 4, $3\frac{1}{7}$ d) $\frac{1}{2}$, $\frac{4}{9}$
9. Examples:
   $1 - \frac{2}{5} - \frac{1}{3} = \frac{4}{15}$ h,
   $60 - \left(\frac{2}{5} \times 60\right) - \left(\frac{1}{3} \times 60\right) = 16$ min
10. $495 11. 9.6 m

2.4 Determining Square Roots of Rational Numbers

1. d) 2. e) 3. b) 4. c) 5. a)

6. a) Any rational number between 25 and 36 is correct. Example: 26
   b) Any rational number between 9 and 16 is correct. Example: 12
7. a) 4, 4.84 b) 81, 75.69
   c) 121, 127.69 d) 1, 0.8464
8. a) 196 cm², 216.09 cm² b) 4 km², 5.29 km²
9. a) Yes, both 4 and 9 are perfect squares.
   b) $0.4 = \frac{4}{10}$. No, 10 is not a perfect square.
   c) $0.81 = \frac{81}{100}$. Yes, both 81 and 100 are perfect squares.
   d) No, 2 is not a perfect square.
10. a) $0.16 = \frac{16}{100}$. Yes, both 16 and 100 are perfect squares.
    b) No, 90 is not a perfect square.
    c) $0.001 = \frac{1}{1000}$. No, 1000 is not a perfect square.
    d) $\frac{8}{18} = \frac{4}{9}$. Yes, both 4 and 9 are perfect squares.
11. a) 17 b) 0.19 c) 35 d) 2.3
12. a) 1.5 cm b) 19 m
13. a) 5, 6 b) 7, 8 c) 0.4, 0.5 d) 0.8, 0.9
14. a) 5.5 b) 7.2 c) 0.42 d) 0.88
15. 2.3 m 16. 7.5 cm
17. No, the sides of the room are $\sqrt{15}$ m or approximately 3.87 m, which is larger than the width of the carpet roll.

2 Chapter Link

1. 9 h
2. a) $\frac{9}{10}$, 7.5, $\frac{3}{4}$, 6 h 30 min, $\frac{2}{3}$, $4\frac{2}{8}$, $\frac{4}{9}$ b) Saturday
3. a) Example: Estimated bed area of 4 m² is less than the area of the room, so it will fit. Room sides are about 1.45 m longer than the bed, so it will fit.
   b) Both the flower rug and the geometric rug have sides longer than the bed but shorter than the room.
4. 1 h 25 min

2 Vocabulary Link

Across

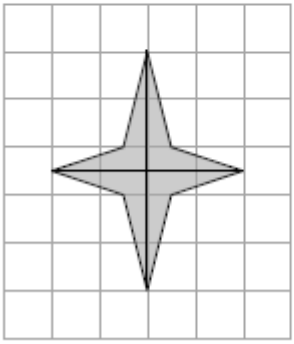
6. non-perfect square

Down

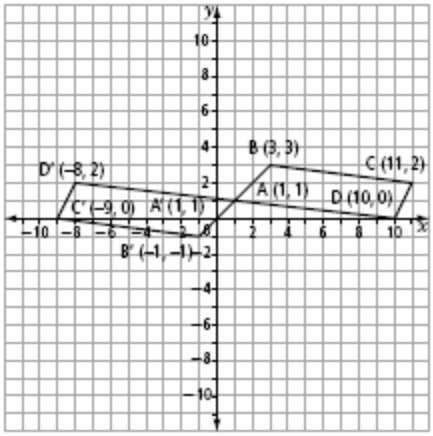
1. equivalent numbers
2. parentheses
3. quotient
4. rational number
5. perfect square

Chapters 1–2 Review

1. $3\frac{2}{5}, -2, \frac{7}{4}, -0.7, 1\frac{1}{3}, 2.5$
2. Vertical, horizontal, and rotational symmetry of order 2 with an angle of rotation measuring 180°



3. a) < b) = c) > d) > e) =
4. a) A(1, 1), B(3, 3), C(11, 2), and D(10, 0)
   b)



   c) A′(1, 1), B′(−1, −1), C′(−9, 0), and D′(−8, 2)
5. 57 °C
6. Estimates are first, then calculations.
   a) −17.5, −17.12 b) 2, 1.7787
7. a) 1 b) 1 c) $-1\frac{1}{2}$ d) $-\frac{1}{2}$
8. a) $\frac{32}{49}$ b) $3\frac{11}{15}$ c) $-\frac{2}{5}$ d) $\frac{3}{10}$
9. approximately 25.24 cm² 10. 40
11. a) Yes, $\frac{1}{5}$ b) No c) Yes, 0.01 d) Yes, 0.7
12. a) 7.1, 7.2 b) 0.801, 0.819
13. a) approximately \$1275
    b) This is not possible because a square gives the maximum area with the minimum perimeter.