Chapter 2 BLM Answers

BLM 2–1 Chapter 2 Math Link Introduction

1. a) 32 **b)** 9 cm^2 **c)** 32 × 9 = 288 cm^2

2. a) 8 **b)** 32 **c)** $\frac{32}{8}$ = 4 cm

3. a) Diagram should show a square with a diagonal line from one corner to the opposite corner.

b) $32^2 + 32^2 = c^2$

$2048 = c^2$

$c = 45.3$ cm

BLM 2–2 Chapter 2 Get Ready

1. a) 152.85714 **b)** 272.430 **c)** 390.16600 **d)** 3.2020202

2. It is less than since we are multiplying by a number less than 1.

3. The answer will be greater than 3 since we are dividing by a number less than 16.

4. a) $\frac{3}{4}$, 0.75 **b)** $\frac{4}{10}$, 0.4 **c)** $\frac{3}{12}$ or $\frac{1}{4}$, 0.25

5. a) $\frac{7}{10}, \frac{3}{4}$ **b)** $\frac{2}{7}, \frac{1}{3}, \frac{3}{8}$

6. a) $\frac{1}{5} + \frac{3}{10}$ **b)** $\frac{2}{3} - \frac{3}{5}$

7. a) $\frac{7}{8}$ **b)** $\frac{23}{24}$ **c)** $\frac{1}{12}$ **d)** $\frac{5}{24}$

8. a) $\frac{5}{8}$ **b)** $\frac{1}{4}$ **c)** $4\frac{1}{8}$

9. a) $\frac{5}{9}$ **b)** $\frac{2}{3}$ **c)** $\frac{15}{16}$ **d)** $\frac{10}{3}$ or $3\frac{1}{3}$

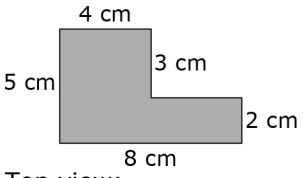
BLM 2–3 Chapter 2 Warm-Up

Section 2.1

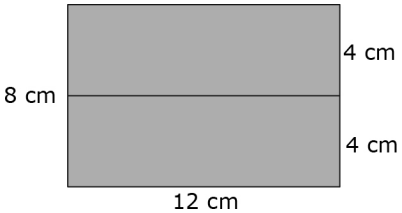
3. Three; 120° or $\frac{1}{3}$ of a turn

4. 571.2 cm^2

5. Side view:

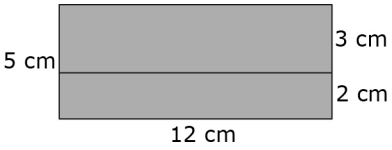


Top view:



Front view:

A

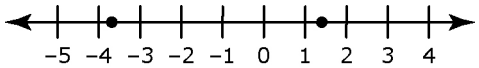


6. $\frac{18}{100} = \frac{9}{50}$

7. $0.\overline{5}$

8. Examples: $\frac{8}{10}, \frac{16}{20}, \frac{40}{50}$

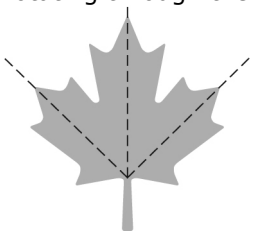
9.



10. Example: On a number line, –8 is farther left and therefore smaller than –5.

Section 2.2

1. The leaf without the stem appears to be rotating through the same-sized angle.



2. You are covering 2 cm^2 because you are covering the 1 cm^2 surface on your fingertip and the 1 cm^2 surface on the tabletop.

3. –3.7

4. –2, 1, 0, 1, 2, 3, 4, 5

5. Example: $\frac{11}{15}$

6. –18 **7.** +3 **8.** +120 **9.** –8 **10.** 0.4

Section 2.3

1. $-2\frac{5}{7}$ **2.** $\frac{-11}{4}$ **3.** Example: Approximately –12

4. $-4.36 + 1.2[2.8 + (-3.5)] = -4.36 + 1.2(-0.7)$

$= -4.36 + (-0.84)$

$= -5.2$

5. –2.2 °C **6.** $\frac{7}{6} = 1\frac{1}{6}$ **7.** $\frac{2}{4} = \frac{1}{2}$

8. $\frac{8}{30} = \frac{4}{15}$ **9.** $\frac{15}{2} = 7\frac{1}{2}$

10. You have six tickets left to sell.

BLM 2–4 Chapter 2 Problems of the Week

1. Example:

$\frac{3}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{3}$	$\frac{1}{12}$
45 min	30 min	15 min	20 min	5 min

2. Example: The pattern lies in the Pythagorean relationship. For example, $3^2 + 4^2 = 5^2$, so the 3, 4, 5 triangle (or any triangle similar to it) is easy to solve without a calculator.

3. Solution: $\frac{1}{2} : 1\frac{1}{3} = \frac{1}{2} : \frac{4}{3} = 3 : 8 = \frac{3}{8}$.

Therefore, $\frac{3}{8}$ of the gold bar should be cut off.

4. a) Length of diagonals from least to greatest:
$1\times1 : \sqrt{2}$, 1×2 or $2\times1 : \sqrt{5}$, $2\times2 : \sqrt{8}$,
3×1 or $1\times3 : \sqrt{10}$, 2×3 or $3\times2 : \sqrt{13}$,
$3\times3 : \sqrt{18}$, $1\times4 : \sqrt{17}$, $2\times4 : \sqrt{20}$,
$3\times4 : \sqrt{25}$ or 5, $1\times5 : \sqrt{26}$, $2\times5 : \sqrt{29}$,
$3\times5 : \sqrt{34}$, $1\times6 : \sqrt{37}$, $2\times6 : \sqrt{40}$, $3\times6 : \sqrt{45}$,
$1\times7 : \sqrt{50}$, $2\times7 : \sqrt{53}$, $3\times7 : \sqrt{58}$, $1\times8 : \sqrt{65}$,
$2\times8 : \sqrt{68}$, $3\times8 : \sqrt{73}$

b) 3×4 or 4×3: $\sqrt{25} = 5$; 6×8 or 8×6: $\sqrt{100}$ or 10

BLM 2–5 Section 2.1 Extra Practice

1. a) 17, −3.606, $-8\frac{3}{4}$ **b)** −0.2, $9.\overline{12}$, $\frac{0}{0}$, $-\frac{13}{4}$

2. a) −9 **b)** $\frac{23}{3}$ **c)** 17.6 **d)** $-6.\overline{12}$ **e)** −401

f) $7\frac{5}{7}$

3. A $-\frac{1}{3}$ **B** −2.1 **C** −0.3 **D** $\frac{7}{4}$ **E** $-0.4\overline{9}$ **F** $2\frac{1}{5}$

4. $-\frac{3}{4}$, $-0.\overline{6}$, −0.6, $1\frac{1}{2}$, 1.7

5. 1.9, $\frac{11}{6}$, $1.\overline{3}$, −0.5, $-\frac{2}{3}$

6. b), c)
7. a), b)

8. a) $-\frac{1}{2}$ **b)** $\frac{7}{8}$ **c)** $-\frac{4}{7}$ **d)** $-\frac{1}{10}$ **e)** $-2\frac{3}{4}$

f) $-\frac{1}{11}$

9. a) i) 0.25, 0.5 **ii)** Example: 0.4
b) i) −0.4, −0.6
ii) Example: −0.5
c) i) −0.1, −0.125 **ii)** Example: −0.11
d) i) $-0.\overline{6}$, $-0.8\overline{3}$ **ii)** Example: −0.7
e) i) −1.75, −1.8 **ii)** Example: −1.76
f) i) −1.95, −2.0 **ii)** Example; −1.96

10. a) i) $\frac{8}{10}$, $\frac{9}{10}$ **ii)** Example: $\frac{85}{100} = \frac{17}{20}$

b) i) $-\frac{65}{100}$, $-\frac{66}{100}$ **ii)** Example: $-\frac{655}{1000}$

c) i) $-\frac{9}{10}$, $-\frac{10}{10}$ **ii)** Example: $-\frac{95}{100} = -\frac{19}{20}$

11. a) $\frac{7}{-14} = -\frac{1}{2}$ **b)** $-\frac{75}{100} = -\frac{3}{4}$

c) $-4\frac{4}{10} = -4\frac{2}{5}$

12. 5, 4, 3, 2, 1, 0, −1, −2, −3, −4

BLM 2–6 Section 2.1 Math Link

1. $\frac{4}{5}$ D, $\frac{1}{2}$ A, $\frac{-5}{4}$ C, $\frac{-4}{5}$ B

b) A **c)** $\frac{1}{2}$ **d)** $\frac{-5}{4}$

e) $\frac{-4}{5}$ is closer to zero. Example: $\frac{-5}{4}$ is the same as $\frac{-25}{20}$, $\frac{-4}{5}$ is the same as $\frac{-16}{20}$, and $\frac{-25}{20}$ is further to the left on the number line than $\frac{-16}{20}$.

2. a) $\frac{-2}{3}$ **b)** $\frac{9}{8}$ **c)** $\frac{1}{5}$ **d)** $\frac{-3}{4}$

BLM 2–7 Section 2.2 Extra Practice

1. a) i) Example: 1 + (−3) = −2 **ii)** −2.58
b) i) Example: −7 + −8 = − 15 **ii)** −14.92
c) i) Example: 8 − 5 = 3 **ii)** 2.45
d) i) Example: −3 + 4 = 1 **ii)** 1.38
e) i) Example: −1 + 2 = 1 **ii)** 1.241
f) i) Example: 0.5 + 0.1 = 0.6 **ii)** 0.675
2. a) i) Example: −4 × 7 = −28 **ii)** −27.3
b) i) Example: −5 × (−9) = 45 **ii)** 47.43
c) i) Example: −2 ÷ (−1) = 2 **ii)** 1.2
d) i) Example: 36 ÷ (−4) = −9 **ii)** −8.5
e) i) Example: 3 × (−4) = −12 **ii)** −11.34
f) i) Example: −9 ÷ (−0.3) = 30 **ii)** 26.758
g) i) Example: −6 ÷ 20 = −0.3 **ii)** −0.273
h) i) Example: −0.3 × (−0.9) = 0.27 **ii)** 0.264
3. a) i) Example: −6 + (−1) ÷ (−1 + 0) = −5
ii) −5.4
b) i) Example: −2 × (−3) + (−1) × 2 = 4
ii) 5.016
c) i) Example: −6 × (−4) − 1 ÷ 0.5 = 22
ii) 24.04
4. a) 135.25 + (−159.15) = −23.90
b) Camille's account balance is −$23.90.
5. a) (−12) + (+4) + (−11) + (+9) + (−3) = −13
b) The temperature on Friday was −13 °C.
6. a) 126(2.00) − (130)(1.45) = 63.50
b) The student council earned $63.50 on their birthday card sale.
7. a) 45 − (−63) = 108
b) The difference between the hottest day and coldest day in Canada is 108 °C.
8. a) i) 5.8 − (−8.1) = 13.9 **ii)** −8.1, −3.2, −0.5, 0.6, 1.8, 2.5, 5.8; median: 0.6 **iii)** −8.1 + (−3.2) + (−0.5) + 0.6 + 1.8 + 2.5 + 5.8 = −1.1; −1.1 ÷

$7 \approx -0.16$ **b) i)** $14.2 - (-13.7) = 27.9$
ii) −13.7, −7.3, 0, 4.1, 9.1, 12.3, 14.2; median: 4.1 **iii)** $-13.7 + (-7.3) + 0 + 4.1 + 9.1 + 12.3 + 14.2 = 18.7$; $18.7 \div 7 \approx 2.67$

BLM 2–8 Section 2.2 Math Link

1. Example: Estimate: −2, −4, −1, −5. Sum closest to zero: $-2.6 + 2.1 \approx -1$. Verification: $-2.6 + 2.1 = -0.5$
2. Example: Estimate: −4, −3, −2, −3. Sum closest to zero: $-4.6 + 3.1 \approx -2$. Verification: $-4.6 + 3.1 = -1.5$
3. Example: Estimate: −3, −2, −3, −2. Sum closest to zero: $3.2 + (-4.5) \approx -2$ or $3.2 + (-5.4) \approx -2$ but $3.2 + (-5.4)$ would be further left on the number line so choose $3.2 + (-4.5)$. Verification: $3.2 + (-4.5) = -1.3$

BLM 2–9 Section 2.3 Extra Practice

1. a) i) Example: $\frac{1}{2} + 0 = \frac{1}{2}$ **ii)** $\frac{5}{8}$

b) i) Example: $-\frac{1}{2} + 1 = \frac{1}{2}$ **ii)** $\frac{1}{5}$

c) i) Example: $4 + (-2) = 2$ **ii)** $1\frac{1}{2}$

d) i) Example: $\frac{1}{2} - \left(-\frac{1}{2}\right) = 1$ **ii)** $\frac{7}{10}$

e) i) Example: $-1 + \frac{1}{2} = -\frac{1}{2}$ **ii)** $-\frac{1}{4}$

f) i) Example: $-\frac{1}{2} + (-2) = -2\frac{1}{2}$ **ii)** $-2\frac{7}{12}$

g) i) Example: $-3\frac{1}{2} + 1\frac{1}{2} = -2$ **ii)** $-2\frac{1}{14}$

h) i) Example: $-\frac{1}{2} - (-1) = \frac{1}{2}$ **ii)** $\frac{1}{6}$

2. a) i) Example: $\frac{1}{2} \times (-1) = -\frac{1}{2}$ **ii)** $-\frac{4}{15}$

b) i) Example: $2 \times 4 = 8$ **ii)** $9\frac{1}{6}$

c) i) Example: $5 \div (-3) = -1\frac{2}{3}$ **ii)** −2

d) i) Example: $-1 \div \left(-\frac{1}{2}\right) = 2$ **ii)** $1\frac{7}{8}$

e) i) Example: $-1 \times \left(-\frac{1}{2}\right) = \frac{1}{2}$ **ii)** $\frac{1}{4}$

f) i) Example: $0 \div \left(-\frac{1}{2}\right) = 0$ **ii)** $-\frac{2}{5}$

g) i) Example: $-\frac{1}{2} \div (-1) = \frac{1}{2}$ **ii)** $\frac{2}{3}$

h) i) Example: $1 \times \left(-2\frac{1}{2}\right) = -2\frac{1}{2}$ **ii)** $-2\frac{4}{7}$

3. a) Example: $\left(24 - \frac{3}{8} \times 24\right) = 15$;

$15 \quad \frac{2}{3} \quad 10; 15 \quad 10 \quad 5$

b) Mark has 5 left to deliver.

4. a) Examples: $\left(-\frac{1}{3} \times 6000\right) + \left(-\frac{1}{4} \times 6000\right)$

$+\left(-\frac{1}{5} \times 6000\right) + \left(-\frac{1}{10} \times 6000\right) = -5300$,

$6000 + (-5300) = 700$;

$\left(-\frac{1}{3}\right) + \left(-\frac{1}{4}\right) + \left(-\frac{1}{5}\right) + \left(-\frac{1}{10}\right) = -\frac{53}{60} \times 6000 = -5300$,

$6000 + (-5300) = 700$.
b) The Rodriguez family has $700 left for other expenses.

5. a) $-1\frac{1}{2} - \frac{5}{6} = -2\frac{1}{3}$ **b)** $-\frac{3}{10} - \frac{2}{5} = -\frac{7}{10}$

c) $2\frac{1}{4} \div \left(-1\frac{3}{8}\right) = -1\frac{7}{11}$ **d)** $\frac{2}{3} \times \left(-3\frac{1}{2}\right) = -2\frac{1}{3}$

BLM 2–10 Section 2.3 Math Link

1.

Product	Estimate	Calculation
$\frac{8}{2} \times \left(\frac{-7}{-3}\right)$	$4 \times 2 = 8$	$\frac{-56}{-6} = 9\frac{1}{3}$
$\frac{-3}{2} \times \left(\frac{8}{-7}\right)$	$-2 \times (-1) = 2$	$\frac{-24}{-14} = 1\frac{5}{7}$
$\frac{8}{-3} \times \left(\frac{-7}{2}\right)$	$-3 \times (-3) = 9$	$\frac{-56}{-6} = 9\frac{1}{3}$

2. Example: $\frac{8}{-3} \times \left(\frac{-7}{2}\right) = 9\frac{1}{3}$

3. Example: Only six numbers appear in the numerator or denominator: −56, −24, −14, −6, 16, 21.

4. Example: No, it is only necessary to determine the products of fractions that have greater values in the numerator than in the denominator.

BLM 2–11 Section 2.4 Extra Practice

1. a) i) Example: 16, 25, 19 **ii)** 19.36
b) i) Example: 121, 144, 136 **ii)** 136.89
c) i) Example: 0.49, 0.64, 0.6 **ii)** 0.6084
d) i) Example: $10^2 = 100$, $11^2 = 121$, $10.3^2 \approx 106$ **ii)** 106.09
2. a) i) Example: 4, 9, 5, 5 cm^2
ii) 5.29, 5.29 cm^2
b) i) Example: 64, 81, 79, 79 m^2
ii) 79.21, 79.21 m^2
c) i) Example: 0.25, 0.36, 0.27, 0.27 mm^2
ii) 0.2704, 0.2704 mm^2
d) i) Example: 0.0064, 0.0081, 0.007, 0.007 km^2
ii) 0.007396, 0.007396 km^2

3. a) No **b)** Yes, $\frac{1}{2} \times \frac{1}{2}$ **c)** Yes, $\frac{5}{3} \times \frac{5}{3}$
d) Yes, 0.9×0.9 **e)** No **f)** Yes, 1.2×1.2
g) Yes, 0.01×0.01 **h)** Yes, $\frac{1}{10} \times \frac{1}{10}$

4. a) $16 \times 16 = 256$, 16 **b)** $1.9 \times 1.9 = 3.61$, 1.9 **c)** $35 \times 35 = 1225$, 35
d) $0.22 \times 0.22 = 0.0484$, 0.22

5. a) $1.1 \times 1.1 = 1.21$, 1.1 cm
b) $25 \times 25 = 625$, 25 m **c)** $0.3 \times 0.3 = 0.09$, 0.3 mm **d)** $0.6 \times 0.6 = 0.36$, 0.6 km

6. a) i) Example: $\sqrt{81} = 9$, $\sqrt{100} = 10$, $\sqrt{83} \approx 9.1$ **ii)** 9.1

b) i) Example: $\sqrt{4} = 2$, $\sqrt{6.25} = 2.5$, $\sqrt{5.6} \approx 2.4$ **ii)** 2.37

c) i) Example: $\sqrt{0.81} = 0.9$, $\sqrt{1} = 1$, $\sqrt{0.91} \approx 0.96$ **ii)** 0.954

7. $\sqrt{5000} \approx 71$. The lot's dimensions are 71 m by 71 m.

8. $9^2 = 81$, $\sqrt{9} = 3$, $81 - 3 = 78$. The difference between the square of 9 and the square root of 9 is 78.

BLM 2–12 Section 2.4 Math Link

1. a) 9 **b)** $1.1 \times 1.1 = 1.21$ cm^2
c) $9 \times 1.21 = 10.89$ cm^2 **d)** 9
e) $9 \times 10.89 = 98.01$ cm^2
2. a) 81 **b)** $81 \times 1.21 = 98.01$ cm^2
c) The answers are the same.
3. a) 9 **b)** $182.25 \div 9 = 20.25$ cm^2
c) $\sqrt{20.25} = 4.5$ cm **d)** 4.5 cm × 4.5 cm
4. a) $\sqrt{182.25} = 13.5$ cm **b)** 3
c) $13.5 \div 3 = 4.5$ **d)** 4.5 cm × 4.5 cm

BLM 2–13 Chapter 2 Test

1. A **2.** B **3.** A **4.** D
5. 0.7, 0.8 **6.** 7.4 **7. a)** 0.6 **b)** 8.0
8. a) $\frac{9}{5}$ **b)** $\frac{1}{7}$ **9.** 4 and 5 **10.** 5.29 **11.** ≈ 3.2
12. Should be A, not $2A$. $s = 15$
13. a) $4\frac{9}{32}$ m **b)** $\frac{17}{8}$ m by $\frac{5}{4}$ m **c)** $\frac{85}{32}$ m