## Answers

### Chapter 1

#### Lesson 1.1

1. 

<table>
<thead>
<tr>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>@</td>
<td></td>
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<td></td>
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<td>@</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

a. three hundred fifty-six thousand, four hundred one  
b. 356,401  

2.  28,199  
3. 90,038  
4. 412,603  
5. 800,005  
6. 507,700  
7. 600,600  

8. Fifty thousand, six hundred eighty  
9. Two hundred fifty-five thousand, four hundred thirty  
10. One hundred ninety-nine thousand, three hundred three  
11. Eight hundred seventy-two thousand, nine hundred  
12. Three hundred five thousand, seventy-two  
13. 304,678  
14. 876,430  
15. 304,687  
16. 876,403  

17. Answers vary.  
Samples: 306,748; 346,780; 387,406  

18. 

<table>
<thead>
<tr>
<th>Millions</th>
<th>Hundred Thousands</th>
<th>Ten Thousands</th>
<th>Thousands</th>
<th>Hundreds</th>
<th>Tens</th>
<th>Ones</th>
</tr>
</thead>
<tbody>
<tr>
<td>@</td>
<td></td>
<td>^</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. six million, two hundred four thousand, three hundred thirteen  
b. 6,204,313  

19.  9,270,050  
20. 6,084,101  
21. 7,006,899  
22. 4,502,015  
23. 5,050,602  
24. 8,400,085  
25. 3,000,703  

26. Eight million, eight hundred eighty thousand, four hundred twenty-nine  
27. Three million, two thousand, five hundred sixty-six  
28. Five million, nine hundred seventy thousand, one hundred three  
29. Two million, fifty thousand, sixty  
30. Four million, seven hundred thousand, nine hundred  
31. 1,023,596  
32. Answers vary.  
Samples: 3,629,501; 3,269,510; 3,029,561  
33. Answers vary.  
Samples: 3,902,615; 3,260,519; 3,150,269  
34. Answers vary.  
Samples: 6,903,512; 6,935,012; 9,052,136  

#### Lesson 1.2

1. 900,000  
2. 20,000  
3. 5,000  
4. 0  
5. 30  
6. 8  

2. ten thousands  
3. 90,000  
4. 90,000  
5. ten thousands  
6. hundreds  
7. hundred thousands  
8. 5,000  
9. 500  
10. 500,000  
11. 8  
12. ten thousands  
13. hundred thousands  
14. 60,000; ten thousands  
15. 0; 0  
16. 10,000  
17. 700,000  
18. 4,000  
19. 204,891  
20. 570,030  
21. 306,010
Lesson 1.4

1. 4,000
2. 28,000
3. 725,000
4. 300,000
5. 15,000
6. 8,000
7. 12,000
8. 2,000
9. 56,000
10. 81,000
11. 900
12. 500
13. 900
14. 600
15. 2,832 rounds to 3,000.
   1,475 rounds to 1,000.
   The estimated number of tourists was 4,000.
16. 4,342
   7 is about 4,200
   The estimated number of visitors on Monday was 600.
17. $4,000
   $1,000
   His estimated total sales was $4,000.
18. $6,000
   $1,500
   His estimated total sales was $6,000.
19. $5,996
   $1,499
   His actual total sales was $5,996. Answers vary; Exercise 17 is easier to calculate; Exercise 18 gives an estimate that is closer to the actual total sales.

Put on Your Thinking Cap!

Thinking skill: Identifying patterns and relationships
Strategy: Look for pattern
1. 200,000
2. 9,750
3. 1,800,000
4. 1,000
5. 27,000
6. Thinking skill: Comparing
   Strategy: Use guess and check
   Solution: Estimate the number. Then guess and check your answers.
   $20 \times 20 = 400, 30 \times 30 = 900$
   600 is between 400 and 900 so the two numbers are greater than 20 but less than 30.
   $24 \times 25 = 600$
   The page numbers are 24 and 25.

7. Thinking skill: Comparing
   Strategy: Use guess and check
   Solution: 9,805,472
Thinking skill: Comparing
Strategy: Use guess and check
Solution: 394,825 or 394,865

<table>
<thead>
<tr>
<th>Chapter 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson 2.1</strong></td>
</tr>
<tr>
<td>1. 6,541</td>
</tr>
<tr>
<td>3. 6,471</td>
</tr>
<tr>
<td>5. 2,538</td>
</tr>
<tr>
<td>7. 13,176</td>
</tr>
<tr>
<td>9. 25,192</td>
</tr>
<tr>
<td>11. 75,792</td>
</tr>
<tr>
<td>13. 908</td>
</tr>
<tr>
<td>15. 56</td>
</tr>
<tr>
<td>17. 436</td>
</tr>
<tr>
<td>19. Answers vary.</td>
</tr>
</tbody>
</table>

Samples: \( 679 \times 11 \times 91 = 679,679; \)
\( 189 \times 11 \times 91 = 189,189. \) The answer will be the 3-digit number repeated.

**Lesson 2.2**

| 1. 380 | 2. 7,460 |
| 3. 6,240 | 4. 8,570 |
| 5. 7,580 | 6. 6,800 |
| 7. 10 | 8. 190 |
| 9. 10 | 10. 10 |
| 11. 6,400 | 12. 80,800 |
| 13. 8; 448; 4,480 |
| 14. 4; 3,024; 30,240 |
| 15. 5; 3,400; 34,000 |
| 16. 857; 6; 5,142; 51,420 |
| 17. 1,520 | 18. 45,760 |
| 19. 14,700 | 20. 26,250 |
| 21. 4,700 | 22. 32,500 |
| 23. 16,800 | 24. 231,000 |
| 25. 192,000 | 26. 759,000 |
| 27. 100 | 28. 7,120 |
| 29. 1,000 | 30. 100 |
| 31. 7,910 | 32. 5,200 |
| 33. 6; 144; 14,400 | 34. 4; 432; 43,200 |

**Lesson 2.3**

| 1. 3,680 | 2. 4,770 |
| 3. 2,254 | 4. 3,016 |
| 5. 2,331 | 6. 3,055 |
| 7. 3,698 | 8. 8,064 |
| 9. 30,520 | 10. 22,200 |
| 11. 13,365 | 12. 47,936 |
| 13. 49,452 | 14. 97,278 |
| 15. 93,834 | 16. 74,592 |

**Lesson 2.4**

| 1. 720 | 2. 280 |
| 3. 2,300 | 4. 68,000 |
| 5. 232 | 6. 1,600 |
| 7. 10 | 8. 10 |
| 9. 3,980 | 10. 55,000 |
| 11. 10; 930; 310 | 12. 5; 950; 5; 190 |
| 13. 6; 12,600; 6; 2,100 |
| 14. 1,500 | 15. 6,200 |
| 16. 5,400 | 17. 3,820 |
| 18. 48 | 19. 357 |
| 20. 79 | 21. 350 |
| 22. 192 | 23. 275,000 |
| 24. 100 | 25. 1,000 |
| 26. 514,000 | 27. 680,000 |
| 28. 100; 135; 45 | 29. 5; 850; 5; 170 |
| 30. 100; 8,400; 2,100 | 31. 1,000; 924; 154 |
| 32. 9; 981; 9; 109 | 33. 1,000; 756; 108 |
| 34. 31 | 35. 152 |
| 36. 800; 40; 20 | 37. 7,000; 500; 14 |
| 38. 9,000; 300; 30 | 39. 4,000; 20; 200 |

Extra Practice 5A
Lesson 2.5
1. 4  
2. 5 R 10  
3. 3 R 1  
4. 11 R 48  
5. 8 R 14  
6. 7 R 2  
7. 21 R 15  
8. 18 R 21  
9. Estimated quotient = 80  
   Actual quotient = 79  
10. Estimated quotient = 60  
    Actual quotient = 65  
11. Estimated quotient = 100  
    Actual quotient = 106  
12. Estimated quotient = 80  
    Actual quotient = 82  
13. Estimated quotient = 100  
    Actual quotient = 99  
14. Estimated quotient = 40  
    Actual quotient = 38  
15. Estimated quotient = 30  
    Actual quotient = 26  
16. Estimated quotient = 20  
    Actual quotient = 19

Lesson 2.6
1. 110  
   Step 1 60 - 20 = 40  
   Step 2 40 + 70 = 110  
2. 280  
   Step 1 200 ÷ 5 = 40  
   Step 2 40 × 7 = 280  
3. 82  
   Step 1 135 ÷ 3 = 45  
   Step 2 100 - 45 = 55  
   Step 3 55 + 27 = 82  
4. 200  
   Step 1 108 ÷ 9 = 12  
   Step 2 12 × 10 = 120  
   Step 3 80 + 120 = 200  
5. 411  
   Step 1 42 × 10 = 420  
   Step 2 72 ÷ 8 = 9  
   Step 3 420 - 9 = 411  
6. 18  
   Step 1 38 - 18 = 20  
   Step 2 90 × 20 = 1,800  
   Step 3 1,800 ÷ 100 = 18

Lesson 2.7 (Part 1)
1. 1,456 ÷ 56 = 26  
   26 × $18 = $468  
   He collects $468.  
2. 230 - 50 = 180  
   180 ÷ 15 = 12  
   12 × $20 = $240  
   Each child collected $240.  
3. 641 + 490 = 1,131  
   1,131 ÷ 8 = 904  
   904 ÷ 58 = 156  
   There are 156 origami art pieces in each classroom.  
4. 487 + 345 = 832  
   832 - 40 = 792  
   792 ÷ 36 = 22  
   There are 22 seashells in each box.  
5. $4 + 3 × $7 = $25  
   He paid $25.

Lesson 2.7 (Part 2)
1. Cost of tickets for 1 adult and 3 children  
   = $7 + 3 × $3  
   = $16

   Tickets = $6,000

   Adult | Child | Child | Child
   ----------------------
   Adult | Child | Child | Child

   Tickets = $16

   $6,000 ÷ $16 = 375  
   375 × 4 = 1,500  
   1,500 people bought tickets.
2. Handbag $324
3 pairs of shoes $324

9 units $324
1 unit $324 ÷ 9 = $36
3 units $324 ÷ 3 = $108

The cost of the handbag is $108.

3. Mr. Jacob
Tony

(55 - 7) ÷ 3 = 16

16 - 7 = 9

In 9 years, Mr. Jacob will be 4 times as old as Tony.

4. 3 video cameras $3,213
5 digital cameras $3,213

1 unit $3,213 ÷ 17 = $189
5 units $189 × 5 = $945

He pays $945.

5. Anne
Ryan
Joel

7 units $1,925
1 unit $1,925 ÷ 7 = $275
4 units $275 × 4 = $1,100

Joel collects 1,100 cans.

6. David
Joseph

4 units $328 - 176 = 152
1 unit $152 ÷ 4 = 38

176 - 38 = 138

David has 138 marbles.

7. Fiction
Non-fiction
Picture

3 units $2,630 - 240 - 190 - 190 = $2,010
1 unit $2,010 ÷ 3 = 670
670 + 190 = 860
860 + 240 = 1,100

There are 670 picture books, 860 non-fiction books, and 1,100 fiction books.

8. 49 m

Length of 3 yellow banners
= 49 - 17 - 17 = 15 m

Length of 1 yellow banner = 15 ÷ 3
= 5 m

Length of 1 blue banner = (17 - 5) ÷ 2
= 6 m

The length of each blue banner is 6 meters.


Cost of 3 shirts and 9 jackets
= 3 × $220
= $660

Cost of 5 jackets = $660 - $360
= $300

Cost of 1 jacket = $300 ÷ 5
= $60

Cost of 1 shirt = $220 - ($60 × 3)
= $40

The cost of each shirt is $40.

10. Day Amount More Than First Day (g)

<table>
<thead>
<tr>
<th>Day</th>
<th>Amount</th>
<th>More Than First Day (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>328</td>
<td>176</td>
</tr>
<tr>
<td>2</td>
<td>1 × 20</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>2 × 20</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3 × 20</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>4 × 20</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>5 × 20</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>6 × 20</td>
<td></td>
</tr>
</tbody>
</table>

Total $21 × 20 ÷ 7 = 120

The hamsters ate 120 grams of food on the first day.

11. Ann
Sister

1 unit $198 + $20 - $60 = $158
$158 × 2 - $20 = $296

Ann had $296 at first.
12. Box A 294 294
Box B 294
3 units → 294
1 unit → 294 ÷ 3 = 98
7 units → 7 × 98 = 686
There were 686 marbles in Box A at first.

Put on Your Thinking Cap!
1. Strategy: Use guess and check
Solution:

<table>
<thead>
<tr>
<th>No. of correct answers</th>
<th>No. of incorrect answers</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>5</td>
<td>75 - 10 = 65</td>
</tr>
<tr>
<td>14</td>
<td>6</td>
<td>70 - 12 = 58</td>
</tr>
<tr>
<td>13</td>
<td>7</td>
<td>65 - 14 = 51</td>
</tr>
</tbody>
</table>

She has 13 correct answers.

2. Strategy: Use guess and check
Solution: Estimate the number. Then guess and check your answer.
20 × 20 = 400
30 × 30 = 900
624 is in between 400 and 900. So the two numbers are greater than 20 but less than 30.
The last digit of the product 624 is 4 → 4 × 6 = 24.
24 × 26 = 624
The greater number is 26.

3. Thinking skill: Identifying patterns and relationships
Strategy: Look for pattern
Solution: 264; 385; 792; 759; 638; 836
There is a pattern in the answers. To find the answers without using a calculator, follow these steps:

Step 1 Separate the digits of the first factor. For example, 69 × 11 → 6, 9.

Step 2 Add the digits of the first factor. For example, 6 + 9 = 15.

Step 3 Put the ones digit of the sum from Step 2 between the digits in Step 1. For example, 659.

Step 4 Add the tens digit of the sum from Step 2 to the hundreds digit of the number in Step 3. For example, 759.

4. Thinking skill: Comparing
Strategy: Use a model, Use before-after concept
Solution:

<table>
<thead>
<tr>
<th>Before</th>
<th>After</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aaron</td>
<td>976</td>
</tr>
<tr>
<td>Benga</td>
<td>976</td>
</tr>
</tbody>
</table>
8 units → 976
1 unit → 976 ÷ 8 = 122
5 units → 5 × 122 = 610
Benga should give Aaron 610 cards.

5. Thinking skill: Comparing
Strategy: Use a model, Use before-after concept
Solution:

1. 266 fish are left in the aquarium.

6. Thinking skill: Comparing
Strategy: Use guess and check
Solution: Common multiples of 5 and 7 are 35, 70, 105, ...

<table>
<thead>
<tr>
<th>No. of fruits</th>
<th>Cost of oranges</th>
<th>Cost of pears</th>
<th>Difference in amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>35</td>
<td>(35 × 7) × $2</td>
<td>(35 × 5) × $3</td>
<td>$11</td>
</tr>
<tr>
<td>70</td>
<td>(70 × 7) × $2</td>
<td>(70 × 5) × $3</td>
<td>$22</td>
</tr>
<tr>
<td>105</td>
<td>(105 × 7) × $2</td>
<td>(105 × 5) × $3</td>
<td>$33</td>
</tr>
</tbody>
</table>

a. $30 + $63 = $93
Sophia pays $93 in all.
b. 2 × 105 = 210
She buys 210 oranges and pears altogether.

7. Thinking skill: Comparing
Strategy: Use a model, Use before-after concept
Solution:

<table>
<thead>
<tr>
<th>Jennifer</th>
<th>Left</th>
<th>Eaten</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark</td>
<td>Left</td>
<td>Eaten</td>
</tr>
<tr>
<td>96</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
11. Thinking skill: Analyzing parts and whole
   Strategy: Use a diagram
   Solution:

   ![](image)

   \[10 \times 120 = 1,200\]
   The total distance covered was 1,200 meters.

12. Thinking skill: Identifying patterns and relationships
   Strategy: Use guess and check
   Solution:
   Greatest: \(542 \times 63 = 34,146\)
   Least: \(356 \times 24 = 8,544\)

### Chapter 3

**Lesson 3.1**

1. Answers vary.
   Samples: \(2 \_ 8\); \(3 \_ 12\)

2. Answers vary.
   Samples: \(4 \_ 6\); \(6 \_ 9\)

3. Answers vary.
   Samples: \(8 \_ 12\); \(18 \_ 27\)

4. Answers vary.
   Samples: \(6 \_ 9\); \(10 \_ 15\)

5. Answers vary.
   Samples: \(12 \_ 18\); \(14 \_ 21\)

6. Answers vary.
   Samples: \(10 \_ 15\); \(16 \_ 24\)

7. \(\frac{2}{3} + \frac{1}{4} = \frac{8}{12} + \frac{3}{12}\)
   \[= \frac{11}{12}\]
Lesson 3.4
1. 0.9
2. 0.8
3. 0.15
4. 0.36
5. 2.3
6. 2.5
7. 2.75
8. 3.6
9. 0.68
10. 3.75
11. 2.6
12. 3.875
13. 4.35
14. 5.75
15. $15 \div 6 = $2.50
   She pays $2.50 for each notebook.

Lesson 3.5
1. $\frac{7}{8}$
2. $\frac{5}{12}$
3. $\frac{13}{24}$
4. $\frac{11}{36}$
5. $\frac{19}{24}$
6. $\frac{11}{30}$
7. $\frac{3}{2}$
8. $\frac{10}{2}$
9. $\frac{3}{2}$
10. 7
11. $\frac{6}{2}$
12. 19

Lesson 3.6
1. $\frac{2}{9}$
2. $\frac{1}{4}$
3. $\frac{7}{20}$
4. $\frac{5}{24}$
5. $\frac{13}{21}$
6. $\frac{7}{18}$
7. 2
8. $\frac{4}{2}$
9. $\frac{1}{2}$
10. 2
11. 2
12. $\frac{1}{2}$

Lesson 3.7
1. $28 \div 8 = 3\frac{1}{2}$
   It takes $3\frac{1}{2}$ minutes to play 1 song.
   a. $3\frac{1}{2}$
   b. $3\frac{1}{2} = 3.5$
   It takes 3.5 minutes to play 1 song.
2. \( \frac{1}{4} + \frac{1}{6} = \frac{5}{12} \)
\( 1 - \frac{5}{12} = \frac{7}{12} \)
\( \frac{7}{12} \) of the participants have black hair.

3. \( \frac{7}{10} + 2\frac{3}{4} = 6\frac{9}{20} \)
\( 6\frac{9}{20} - 4\frac{3}{5} = 1\frac{17}{20} = 1.85 \)
1.85 pounds of flour are left.

4. \( 2\frac{3}{4} - \frac{5}{8} = 2\frac{1}{8} \)
\( 2\frac{3}{4} + 2\frac{1}{8} = 4\frac{7}{8} = 4.875 \)
She uses 4.875 meters of cloth in all.

5. \( 7 \times \frac{1}{6} = \frac{7}{6} \)
\( \frac{8}{9} - \frac{7}{6} = \frac{13}{18} \)
\( \frac{13}{18} \) liter of apple juice is left after a week.

6. \( \frac{1}{8} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{5}{8} \)
\( 1 - \frac{5}{8} = \frac{3}{8} \)
\( \frac{3}{8} \) of the loaf of bread is left.

7. \( \frac{2}{9} + \frac{1}{6} + \frac{2}{6} = \frac{13}{18} \)
\( 1 - \frac{13}{18} = \frac{5}{18} \)
\( \frac{5}{18} \) of the book is not read.

8. a. \( 1\frac{2}{3} + 7\frac{8}{8} = 2\frac{13}{24} \)
Jamal spent \( 2\frac{13}{24} \) hours watching television and helping with housework.

b. \( 1\frac{4}{5} - \frac{7}{8} = \frac{37}{40} \)
Jamal spent \( \frac{37}{40} \) hour more on the nap.

9. \( 2\frac{3}{5} + \frac{3}{4} = 3\frac{7}{20} \)
\( 3\frac{7}{20} + 2\frac{3}{5} = 5\frac{19}{20} \)
They buy \( 5\frac{19}{20} \) pounds of meat altogether.

10. \( \frac{7}{10} - \frac{1}{4} = \frac{9}{20} \)
\( \frac{7}{10} + \frac{9}{20} = \frac{3}{20} \)
The total weight of the two boxes is \( 3\frac{3}{20} \) pounds.

11. \( 4\frac{3}{5} - \frac{3}{4} = 3\frac{17}{20} \)
\( 4\frac{3}{5} + 4\frac{3}{5} + 3\frac{17}{20} + 3\frac{17}{20} = 16\frac{9}{10} \)
The perimeter of the storeroom is \( 16\frac{9}{10} \) meters.

12. \( 4\frac{1}{5} + 3\frac{2}{5} = 7\frac{3}{5} \)
\( 7\frac{3}{5} - 2\frac{1}{2} = 5\frac{1}{10} \)
There were \( 5\frac{1}{10} \) liters of water in the tank at first.

**Put on Your Thinking Cap!**

1. Thinking skill: Comparing
Solution:
Length of each piece of rope P
\( = 2 \div 3 = \frac{2}{3} \) m
Length of each piece of rope Q
\( = 2\frac{3}{5} + \frac{2}{5} \)
\( = 1\frac{1}{5} \) m
Length of rope Q = \( 1\frac{1}{15} + 1\frac{1}{15} + 1\frac{1}{15} \)
\( = 3\frac{1}{5} \)

The length of rope Q is \( 3\frac{1}{5} \) meters.

2. Thinking skill: Comparing
Strategy: Use a model
Solution:

<table>
<thead>
<tr>
<th>Lionel</th>
<th>Gary</th>
<th>Vivian</th>
</tr>
</thead>
</table>
Vivian has 12 units of money and Lionel has 3 units.
\( 12 \div 3 = 4 \)
Vivian’s amount of money is 4 times Lionel’s amount of money.

Extra Practice 5A  165
3. Thinking skill: Comparing
Strategy: Use a model
Solution:
Andrew  
Malik
Andrew's savings is \( \frac{5}{8} \) of Malik's savings.

4. Thinking skill: Identifying patterns and relationships
Strategy: Look for pattern
Solution:
\[
\frac{1}{100} + \frac{2}{100} + \cdots + \frac{49}{100} + \frac{50}{100} + \cdots + \frac{98}{100} + \frac{99}{100} = 1
\]
The sum of each pair of fractions is 1.
Number of such pairs of fractions
\[= 98 \div 2\]
\[= 49\]
Value
\[= 49 + \frac{50}{100}\]
\[= 49\frac{1}{2}\]

5. Thinking skill: Identifying patterns and relationships
Strategy: Look for pattern
Solution:
Look for pairs of numbers that give a sum of 11.
\[1 + 2 + 3 + 4 + 5 + 6 + 7 + 8 + 9 + 10 = 5 \times 11\]
\[= 55\]
Value
\[= \frac{1}{99} \times 55\]
\[= \frac{5}{9}\]

6. Thinking skill: Identifying patterns and relationships
Strategy: Look for pattern
Solution:
\[
\frac{1}{1 \times 2} + \frac{1}{2 \times 3} = \frac{2}{3}\]
\[
\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} = \frac{3}{4}\]
\[
\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} = \frac{4}{5}\]
\[
\frac{1}{1 \times 2} + \frac{1}{2 \times 3} + \frac{1}{3 \times 4} + \frac{1}{4 \times 5} + \cdots + \frac{1}{28 \times 29} + \frac{1}{29 \times 30} = \frac{29}{30}\]

7. Thinking skill: Comparing
Strategy: Use a model
Solution:
\[
\frac{2}{5} = 0.4, \quad 1 = 0.5, \quad \frac{5}{10} = 0.5
\]
Boys
Girls
Went to fun fair
Went to fun fair
Did not go to fun fair
\[\frac{11}{20}\]
\[\frac{9}{20}\]
\[\frac{11}{20}\] of the students in the class did not go to the fun fair.

8. Thinking skill: Comparing
Strategy: Use a model
Solution:
Alvin
Joyce
Sean
\[\frac{3}{12} = \frac{1}{4}\]
Sean gets \( \frac{1}{4} \) of the marbles.

Chapter 4

Lesson 4.1
1. \( \frac{1}{2}, \frac{3}{5}, \frac{3}{10} \)  
2. \( \frac{3}{5}, \frac{5}{10} \)
3. \( \frac{15}{22} \)  
4. \( \frac{7}{18} \)
5. \( \frac{1}{8} \)  
6. \( \frac{4}{5} \)
7. \( \frac{1}{5} \)  
8. \( \frac{1}{2} \)

Lesson 4.2
1. \( \frac{2}{7} \times \frac{3}{4} = \frac{3}{14} \)
\[\frac{3}{14} \times 56 = 12\]
Rahul gets 12 paper clips.
2. \( 1 - \frac{2}{3} = \frac{1}{3} \)
\[\frac{1}{3} \times \frac{9}{10} = \frac{3}{10}\]
\[\frac{\frac{3}{10}}{29} \text{ hour is left.}\]
3. **Method 1**

![Diagram](https://via.placeholder.com/150)

Magazine | Book | Left
--- | --- | ---
3 | 6 | 1

1 of his savings are left.

**Method 2**

1 - \( \frac{1}{6} = \frac{5}{6} \)

\( \frac{2}{5} \times \frac{5}{6} = \frac{1}{3} \)

1 - \( \frac{1}{6} - \frac{1}{3} = \frac{1}{2} \)

1 of his savings are left.

4. Fraction of caps that are not red or blue

\[ \frac{1}{6} - \frac{1}{3} = \frac{1}{2} \]

Fraction of caps that are green

\[ \frac{3}{7} \times \frac{1}{2} = \frac{3}{14} \]

3 units \( \rightarrow \) 27

1 unit \( \rightarrow \) 27 ÷ 3 = 9

14 units \( \rightarrow \) 14 × 9 = 126

There are 126 caps altogether.

5. \( 1 - \frac{1}{5} = \frac{4}{5} \)

\( \frac{7}{8} \times \frac{4}{5} = \frac{7}{10} \)

\( \frac{7}{10} \times 30 = 21 \)

She receives 21 text messages.

6. \( 1 - \frac{2}{5} = \frac{3}{5} \)

\( \frac{4}{9} \times \frac{3}{5} = \frac{4}{15} \)

\( \frac{3}{5} - \frac{4}{15} = \frac{1}{3} \)

1 unit \( \rightarrow \) 15

3 units \( \rightarrow \) 3 × 15 = 45

Sam makes 45 bread rolls.

7. Devi

Anne

\[ 6 \times 24 = 144 \]

Anne has 144 cards.

8. **Method 1**

\( \frac{4}{5} \times 165 = 132 \)

132 ÷ 2 = 66

165 - 66 = 99

Marcos has 99 more beads than Roxanne.

**Method 2**

5 units \( \rightarrow \) 165

1 unit \( \rightarrow \) 165 ÷ 5 = 33

3 units \( \rightarrow \) 3 × 33 = 99

Marcos has 99 more beads than Roxanne.

9. \( \frac{1}{5} = \frac{2}{10} \)

\( \frac{1}{2} = \frac{5}{10} \)

\( 1 - \frac{1}{5} - \frac{1}{2} = \frac{3}{10} \)

![Diagram](https://via.placeholder.com/150)

Dictionary | Left
--- | ---
21 | 0

3 units \( \rightarrow \) $21

1 unit \( \rightarrow \) $21 ÷ 3 = $7

5 units \( \rightarrow \) 5 × $7 = $35

Ken has $35 left.

10. a. Spent | Left
--- | ---

4 units \( \rightarrow \) $24

1 unit \( \rightarrow \) $24 ÷ 4 = $6

5 units \( \rightarrow \) 5 × $6 = $30

She spends $30.

b. Flan

Chicken pie

\$30

8 units \( \rightarrow \) $30

1 unit \( \rightarrow \) $30 ÷ 8 = $3.75

6 units \( \rightarrow \) 6 × $3.75 = $22.50

The flan costs $22.50.
Lesson 4.5

1. \( \frac{4}{5} \times 7 = \frac{123}{5} \)
   
   12 \( \frac{3}{5} \) liters are about 13 liters.
   
   \( 13 \div 2 = 6 \frac{1}{2} \)
   
   Mrs. Smith needs to buy 7 bottles every week.

2. \( \frac{3}{4} \times 9 = \frac{153}{4} \)
   
   15 \( \frac{3}{4} \) meters are about 16 meters.
   
   Lily needs 16 meters of ribbon.

3. 

   Container A has 3 more units than container C.
   
   3 units \( \rightarrow \) 21
   1 unit \( \rightarrow \) 21 \( \div 3 = 7 \)
   14 units \( \rightarrow \) 14 \( \times 7 = 98 \)

   Jacky bakes 98 biscuits.

Lesson 4.3

1. \( \frac{1}{8} \)
2. \( \frac{1}{5} \)
3. \( \frac{1}{3} \)
4. \( \frac{1}{14} \)
5. \( \frac{9}{14} \)
6. \( \frac{9}{10} \)
7. \( 6 \)
8. \( \frac{39}{16} \)
9. \( \frac{63}{5} \)
10. \( \frac{2}{3} \)
11. \( \frac{2}{9} \)

Lesson 4.4

1. \( \frac{73}{5} \)
2. 22
3. \( \frac{82}{3} \)
4. 39

Lesson 4.5

5. 105
6. \( 20 \frac{2}{3} \)
7. \( 62 \frac{1}{3} \)
8. \( 38 \frac{6}{7} \)
9. \( 30 \frac{2}{3} \)
10. \( 33 \frac{3}{4} \)
11. \( 46 \frac{1}{2} \)
12. \( 25 \frac{1}{2} \)

Melody must buy 168 more stickers.

Uncle James has to pay $135.
Lesson 4.6

1. \( \frac{1}{6} + \frac{1}{6} = \frac{1}{3} \)

2. \( \frac{1}{12} \)

3. \( \frac{1}{9} \)

4. \( \frac{2}{15} \)

5. \( \frac{1}{24} \)

6. \( \frac{3}{10} \)

7. \( \frac{1}{18} \)

8. \( \frac{5}{12} \div 5 = \frac{1}{12} \)

There is \( \frac{1}{12} \) liter of paint in each pot.

9. \( \frac{1}{2} \div 5 = \frac{1}{10} \)

Each girl has \( \frac{1}{10} \) of the loaf of bread.

10. \( \frac{3}{10} \div 6 = \frac{3}{20} \)

The total length of 2 of the pieces is \( \frac{3}{10} \) meter.

11. \( \frac{1}{5} - \frac{1}{5} = \frac{4}{5} \)

Each friend got \( \frac{4}{15} \) of the bag of nuts.

Lesson 4.7

1. 5 units 250 - 18 = 232
   1 unit 232 ÷ 8 = 29
   3 × 29 + 18 = 105
   Maria had 105 beads at first.

   Method 2
   250 - 18 = 232
   \( \frac{3}{8} × 232 = 87 \)
   87 + 18 = 105
   Maria had 105 beads at first.

2. Paul
   Shawn
   Tim
   \( \frac{5}{280} \)
   10 units → 280
   1 unit → 280 ÷ 10 = 28
   3 units → 3 × 28 = 84
   Tim has 84 more postcards than Paul.

3. \( 1 - \frac{5}{9} = \frac{4}{9} \)

   Number of boys who do not take part in sports activities
   \( = \frac{4}{9} × 540 \)
   \( = 240 \)

   Number of boys in school
   \( = \frac{3}{5} × 1,800 \)
   \( = 1,080 \)

   Number of boys who take part in sports activities
   \( = 1,080 - 240 \)
   \( = 840 \)

   840 boys take part in sports activities.

4. Daniel
   William
   \( \frac{5}{195} \)
   5 units → 195
   10 units → 195 × 2 = 390
   Daniel has 390 marbles.

5. Shally
   Katherine
   \( \frac{68}{288 + 68} \)
   4 units → \( \frac{288 + 68}{68} \)
   1 unit → \( \frac{356}{4} = \frac{89}{21} \)
   \( $89 - $68 = $21 \)
   Shally had $21 at first.

6. Class C
   Class A
   Class B
   \( \frac{296}{160} \)
   1 unit → 160 - 92 = 68
   2 units → 2 × 68 = 136
   136 + 160 = 296
   Class B folds 296 paper cranes.
7. Mrs. Spencer:

<table>
<thead>
<tr>
<th></th>
<th>Units</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>$534</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>$534</td>
</tr>
<tr>
<td>H11004</td>
<td>3</td>
<td>$178</td>
</tr>
<tr>
<td>H11005</td>
<td>8</td>
<td>$1,424</td>
</tr>
</tbody>
</table>

Mrs. Spencer's paycheck is $1,424.

8. 5 kg of flour $12
4 kg of sugar $12

<table>
<thead>
<tr>
<th></th>
<th>Unit(s)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8</td>
<td>$178</td>
</tr>
<tr>
<td>H11003</td>
<td>40</td>
<td>$12</td>
</tr>
<tr>
<td>H11005</td>
<td>5</td>
<td>$1.50</td>
</tr>
</tbody>
</table>

The cost of 1 kilogram of sugar was $1.50.

Put on Your Thinking Cap!

1. Thinking skill: Comparing
Strategy: Use a model
Solution:

<table>
<thead>
<tr>
<th></th>
<th>Refrigerator</th>
<th>Oven</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spent</td>
<td>$280</td>
<td>$1,960</td>
</tr>
<tr>
<td>Spent</td>
<td>$1,960</td>
<td>$392</td>
</tr>
<tr>
<td>Spent</td>
<td>$3,136</td>
<td></td>
</tr>
</tbody>
</table>

Mrs. Tan's savings was $3,136 at first.

2. Thinking skill: Comparing
Strategy: Use a model
Solution:

<table>
<thead>
<tr>
<th></th>
<th>Reena</th>
<th>Pauline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spent</td>
<td>28</td>
<td>35</td>
</tr>
<tr>
<td>Left</td>
<td>154</td>
<td>154</td>
</tr>
</tbody>
</table>

Reena has 154 bookmarks.

3. Thinking skill: Comparing
Strategy: Use a model, Use before-after concept
Solution:

<table>
<thead>
<tr>
<th></th>
<th>Kerrie</th>
<th>Jane (before spending)</th>
<th>Jane (after spending)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>28 + 35 = 63</td>
<td>$203</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3 × 63 = 189</td>
<td>189 – 35 = 154</td>
</tr>
</tbody>
</table>

Reena has 154 bookmarks.

4. Thinking skill: Comparing
Strategy: Use before-after concept
Solution:

<table>
<thead>
<tr>
<th></th>
<th>Kerrie</th>
<th>Jane (before spending)</th>
<th>Jane (after spending)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
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<td>$203</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3 × 63 = 189</td>
<td>189 – 35 = 154</td>
</tr>
</tbody>
</table>

Reena has 154 bookmarks.

5. Thinking skill: Comparing
Strategy: Use a model, Use before-after concept
Solution:

<table>
<thead>
<tr>
<th></th>
<th>Kerrie</th>
<th>Jane (before spending)</th>
<th>Jane (after spending)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>28</td>
<td>28 + 35 = 63</td>
<td>$203</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3 × 63 = 189</td>
<td>189 – 35 = 154</td>
</tr>
</tbody>
</table>

Reena has 154 bookmarks.

6. $78
7 units $78 + 13 = $6
7 units $7 × $6 = $42
They spent $42 altogether.

8. 7 units $80 + $17 = $63
1 unit $63 + $9 = $9
$9 + $17 = $26
Emily had $26 more than Sarah at first.

9. Number of girls = 3/8 × 40
   = 15
Number of boys = 40 – 15
   = 25
(15 × 2) + (25 × 1) = 55
55 units → 220
1 unit → 220 ÷ 55 = 4
(15 × 2) – 25 = 5
5 units → 5 × 4 = 20
All the girls receive 20 more balloons than all the boys.

10. Number of nickels = 1,200 ÷ 5
    = 240

<table>
<thead>
<tr>
<th></th>
<th>Unit(s)</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4</td>
<td>$240</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>$240</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>$420</td>
</tr>
</tbody>
</table>
There are 420 coins in the piggy bank.

11. Mr. Donovan:

<table>
<thead>
<tr>
<th></th>
<th>Left</th>
<th>Saved</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$1,335</td>
<td>$1,335</td>
</tr>
</tbody>
</table>

Mr. Donovan:
5 units → $1,335
1 unit → $1,335 ÷ 5 = $267
2 units → 2 × $267 = $534

170 Answers
7 units → $203
1 unit → $203 ÷ 7 = $29
12 units → 12 × $29 = $348
Kerrie had $348.

4. Strategy: Use a model, Use before-after concept
Solution:
Before:
Number of girls = \( \frac{3}{5} \times 120 = 72 \)
Number of boys = 120 – 72 = 48
After:

<table>
<thead>
<tr>
<th>Boys</th>
<th>Girls</th>
</tr>
</thead>
<tbody>
<tr>
<td>48</td>
<td>48</td>
</tr>
</tbody>
</table>

3 units → 48
1 unit → 48 ÷ 3 = 16
4 units → 4 × 16 = 64
72 – 64 = 8
8 girls left the library.

5. Thinking skill: Comparing
Strategy: Use before-after concept
Solution:
Before:
Adults → 3 units \| Difference
Children → 5 units = 2 units
After:
Adults → 2 units × 2 = 4 units \| Difference
Children → 3 units × 2 = 6 units = 2 units
4 units – 3 units = 1 unit
1 unit → 6
8 units → 8 × 6 = 48
48 people were on the bus at first.

6. Strategies: Use a model, Use before-after concept
Solution:
Before:

After:
\( \frac{3 \times 6}{2} \) 48

3 units → 48
1 unit → 48 ÷ 3 = 16
5 units → 5 × 16 = 80
There were 80 counters in the box at first.

7. Thinking skill: Comparing
Strategies: Use a model, Use before-after concept
Solution:
Before:

After:

15 units → 120
1 unit → 120 ÷ 15 = 8
26 units → 26 × 8 = 208
There were 208 apples and oranges at the stand at first.

8. Thinking skill: Comparing
Strategy: Use before-after concept
Solution:
After:

Before:

12 units – 7 units = 5 units
5 units → 300
1 unit → 300 ÷ 5 = 60
20 units → 20 × 60 = 1,200
The jigsaw puzzle consists of 1,200 pieces.

9. Thinking skill: Analyzing parts and whole
Strategy: Work backward
Solution:
720 ÷ 2 = 360
Each had 360 stamps in the end.

<table>
<thead>
<tr>
<th>Samuel</th>
<th>Pat</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finally</td>
<td>360</td>
</tr>
<tr>
<td>Pat to Samuel</td>
<td>( \frac{360 - 180}{2} = 180 )</td>
</tr>
<tr>
<td>Samuel to Pat</td>
<td>( \frac{180 - 3}{60} = 60 )</td>
</tr>
<tr>
<td></td>
<td>540 – 60 = 480</td>
</tr>
</tbody>
</table>

Samuel had 240 stamps at first.
10. Thinking skill: Analyzing parts and whole
Strategy: Work backward
Solution:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Work</th>
<th>A</th>
<th>B</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finally</td>
<td></td>
<td>18 gal</td>
<td>18 gal</td>
<td>18 gal</td>
</tr>
<tr>
<td>C to A</td>
<td>Pal C: 18 ÷ 3 × 4 = 24</td>
<td>12 gal</td>
<td>18 gal</td>
<td>24 gal</td>
</tr>
<tr>
<td></td>
<td>Pal A: 18 - 6 = 12</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B to C</td>
<td>Pal B: 18 ÷ 3 × 4 = 24</td>
<td>12 gal</td>
<td>24 gal</td>
<td>18 gal</td>
</tr>
<tr>
<td></td>
<td>Pal C: 24 - 6 = 18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A to B</td>
<td>Pal A: 12 ÷ 3 × 4 = 16</td>
<td>16 gal</td>
<td>20 gal</td>
<td>18 gal</td>
</tr>
<tr>
<td></td>
<td>Pal B: 24 - 4 = 20</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Pail A had 16 gallons of water, pail B had 20 gallons of water and pail C had 18 gallons of water at first.

Test Prep for Chapters 1 to 4
11. 2,467,058  12. 710,000
13. 203,485
14. 3,190,500  3,090,500  2,090,500
15. 319,500  290,500
16. 16  16. 424
17. 4  4  12
18. 144
19. 5,925  20. 21  40
20. $2,055
21. Mrs. Jones
   Mr. Graham
   3 units → $2,055
   1 unit → $2,055 ÷ 3 = $685
   4 units → 4 × $685 = $2,740
   Mr. Graham had $2,740.
22. Colin
    Left
    Eaten
    Difference in quantity left = 4 × 9 = 36
23. Model planes
    $834
    Model cars
    $38
    Cost of 1 model plane = $52
    Cost of 1 model car and 1 model plane
    $38
    $90
    $720
    Number of model cars
    $90
    8
    Number of model planes
    8
    3
    He buys 11 model planes.

Chapter 5

Lesson 5.1
1. $w + 8$
2. $a - 10$
3. $p + \frac{3}{4}$
4. $5 - 6y$
5. $6g$
6. $\frac{3k}{2}$
7. $4h$
8. $5s - 12$
9. $7b + 8$
10. $\frac{5d}{4}$
11. 7
12. 13
13. 31
14. 60
15. 14
16. 37
17. 7
18. 5
19. 10
20. 9
21. Mrs. Smith pays 5x dollars.
22. Alyssa has \((6p - 15)\) dollars more than her brother.
23. 2 × 7 = 14
   \((5m - 14)\) liter of milk is left.
24. Each of them has \(\frac{(3y + 8)}{2}\) comics.
25. $k$ bottles of pasta sauce cost
   
   \[k \times 4 = 4k.\]
   
   He received $$(10 - 4k)$$ change.

26. The cost of 3 such books is \(\frac{3y}{8}\) dollars.

27. John has \((y - 20)\) stickers for his sisters.
   
   Each sister gets \(\left(\frac{y - 20}{2}\right)\) stickers.

28. Kenny has \((m + 10)\) fish.
   
   He buys another \((20 + 30) = 50\) fish.
   
   Kenny has \((m + 60)\) fish now.

29. The shorter piece is \(\left(\frac{g - 10}{2}\right)\) inches long.

**Lesson 5.2**

1. \(3g\)
2. \(10w\)
3. \(5a\)
4. \(8b\)
5. \(7h\)
6. \(6k\)
7. \(11d\)
8. \(15n\)
9. \(12x - 4\)
10. \(6 + 10g\)
11. \(4n + 5\)
12. \(6d - 5\)
13. \(12 + 3k\)
14. \(7w + 3\)
15. \(4 + 13h\)
16. \(5 + 3m\)
17. \(5 + 3s\)
18. \(4n + 13\)

**Lesson 5.3**

1. \(<\)
2. \(=\)
3. \(>\)
4. \(>\)
5. \(>\)
6. \(<\)
7. \(>\)
8. \(=\)
9. \(7\)
10. \(4\)
11. \(6\)
12. \(7\)
13. \(8\)
14. \(9\)

**Lesson 5.4**

1. a. Joan’s brother is \((4y - 28)\) years old.
   
   b. \(4 \times 12 = 28\)
   
   Her brother is 20 years old.

2. a. The cost of renting the car is $(120 + 18n)$.
   
   b. $(120 + 18 \times 8) = $264
   
   The cost of renting the car is $264.

3. a. \(\$5 = 500\) cents
   
   He spends \(7g\) cents in one week.
   
   He has \((500 - 7g)\) cents left.

   b. \(7g\) cents = \(\frac{7g}{100}\) dollars
   
   He has \((5 - \frac{7g}{100})\) dollars left.

4. a. \(10w - 2w = 8w\)
   
   \(8w \div 2 = 4w\)
   
   Cindy’s age is \(4w\) years.

   b. If \(w = 4,\)
   
   \(4w = 4 \times 4 = 16\)
   
   Cindy is 16 years old.

5. a. Patrick paid \(3p\) dollars.
   
   b. \(3p = 36\)
   
   \(p = 12\)
   
   When \(p = 12,\) Patrick and Amanda pay the same amount of money for the model planes.

6. a. \(4k + 6 = 4 \times 5 + 6 = 26\)
   
   \(6k - 2 = 6 \times 5 - 2 = 28\)
   
   \(26 < 28\)
   
   Nancy has a shorter ribbon.

   b. \(6k - 2 = 4k + 6\)
   
   \(2k = 8\)
   
   \(k = 4\)
   
   When \(k = 4,\) they will have the same length of ribbon.

7. \(50b - 28b = 22b\)
   
   \(28b > 22b\)
   
   No, he does not save more than he spends.

8. Benny has \(3p\) game cards.
   
   Together Anne and Benny have \((p + 3p) = 4p\) game cards.
   
   If \(4p > 30,\) then \(p\) must be \(8, 9, 10, \ldots\)
   
   The least value of \(p\) is \(8\) so that Anne and Benny together have more game cards than Colin.

**Put on Your Thinking Cap!**

1. Thinking skill: Analyzing parts and whole
   
   Strategy: Solve part of the problem
   
   Solution:
   
   \[5 \times p = 5p\]
   
   \(200g \times 5 = 1,000g = 1\ \text{kg}\)
   
   The total mass of the crackers in 5 boxes is \((5p - 1)\) kilograms.

2. Thinking skill: Analyzing parts and whole
   
   Strategy: Solve part of the problem
   
   Solution:
   
   a. Mr. Johnson will pay $(2x + 30)$.
   
   b. \(2 \times 200 + 30 = 430\)
   
   He will have to pay $430.

Extra Practice 5A 173
3. Thinking skill: Analyzing parts and whole
   Strategy: Solve part of the problem
   Solution:
   a. The remaining stickers are shared by 3 people.
      She gives each brother \( \frac{(80 - 5m)}{3} \) stickers.
   b. If \( m = 4 \),
      \[ \frac{(80 - 5 \times 4)}{3} = 20 \]
      Each brother gets 20 stickers.

4. Thinking skill: Analyzing parts and whole
   Strategy: Solve part of the problem
   Solution:
   a. Jerry’s allowance = 3k dollars
      Danny’s allowance = (3k + 20) dollars
      \( k + 3k + 3k + 20 = 7k + 20 \)
      Their total monthly allowance is (7k + 20) dollars.
   b. 7 \times $18 + $20 = $146
      Their total monthly allowance is $146.

**Chapter 6**

**Lesson 6.1**

1. \( AD \) 2. \( BE \)
3. \( CF \) 4. \( QR \)
5. \( PR \) 6. \( PQ \)
7. \[
\begin{align*}
\text{base} & \\
\end{align*}
\]
8. \[
\begin{align*}
\text{base} & \\
\end{align*}
\]
9. \[
\begin{align*}
\text{base} & \\
\end{align*}
\]
10. \[
\begin{align*}
\text{base} & \\
\end{align*}
\]
11. Base = \( KL \), Height = \( LM \) or
    Base = \( LM \), Height = \( KL \)
12. Base = \( KL \), Height = \( VM \) or
    Base = \( LM \), Height = \( UK \)

**Lesson 6.2**

1. 324 in.\(^2\) 2. 1,350 cm\(^2\)
3. 346 \( \frac{1}{2} \) ft\(^2\) 4. 962 \( \frac{1}{2} \) m\(^2\)
5. 891 cm\(^2\) 6. 900 in.\(^2\)
7. 1,058 cm\(^2\) 8. 1,944 ft\(^2\)

**Put on Your Thinking Cap!**

1. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Area of \( ABC \) = \( \frac{1}{2} \times 72 \times 96 \)
   = 3,456 in.\(^2\)
   Area of \( ADC \) = \( \frac{1}{2} \times 72 \times 48 \)
   = 1,728 in.\(^2\)
   Shaded area = 3,456 - 1,728
   = 1,728 in.\(^2\)

2. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Area of \( ABCD \) = 60 \times 60
   = 3,600 cm\(^2\)
   Area of \( ABC \) = \( \frac{1}{2} \times 60 \times 18 \)
   = 540 cm\(^2\)
   Shaded area = 3,600 - 2 \times 540
   = 2,520 cm\(^2\)

3. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Method 1
   Base of 1 triangle = 60 \div 5
   = 12 cm
   Height of 1 triangle = 30 \div 2
   = 15 cm
   Area of 5 triangles = 5 \times \frac{1}{2} \times 12 \times 15
   = 450 cm\(^2\)
   Area of remaining paper
   = 60 \times 30 - 450
   = 1,350 cm\(^2\)
   
   Method 2
   Since the cut triangles make up a quarter of the paper,
   area of the remaining paper
   = \( \frac{3}{4} \) \times 60 \times 30
   = 1,350 cm\(^2\)

**174 Answers**
4. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Area of $BCD = \frac{1}{2} \times 24 \times 10$
   \[= 120 \text{ cm}^2\]
   Area of $BDE = \frac{1}{2} \times 26 \times 6$
   \[= 78 \text{ cm}^2\]
   Shaded area = $120 - 78$
   \[= 42 \text{ cm}^2\]

5. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Area of $PWTV = 36 \times 28$
   \[= 1,008 \text{ ft}^2\]
   Area of $PVU = \frac{1}{2} \times 24 \times 28$
   \[= 336 \text{ ft}^2\]
   Area of $QWSR = 24 \times 10$
   \[= 240 \text{ ft}^2\]
   Shaded area = $1,008 - 336 - 240$
   \[= 432 \text{ ft}^2\]

6. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   $CD = 2 \times 16$
   \[= 32 \text{ cm}\]
   $AB = (42 \div 2) \times 3$
   \[= 63 \text{ cm}\]
   Area of $ABC = \frac{1}{2} \times 63 \times 32$
   \[= 1,008 \text{ cm}^2\]
   Area of $BEG = \frac{1}{2} \times 42 \times 16$
   \[= 336 \text{ cm}^2\]
   Shaded area = $1,008 - 336$
   \[= 672 \text{ cm}^2\]

7. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Shaded area = $\frac{1}{2} \times 12 \times 12$
   \[= 72 \text{ cm}^2\]

8. Thinking skill: Spatial visualization
   Strategy: Simplify the problem
   Solution:
   Area of 2 triangles = $2 \times \frac{1}{2} \times 24 \times 24$
   \[= 576 \text{ in.}^2\]
   Area of square = $10 \times 10 = 100 \text{ in.}^2$
   Unshaded area = $576 - 100 = 376 \text{ in.}^2$

Chapter 7

Lesson 7.1
1. 60 grams
2. 23 : 10; 11 : 60; 60 : 23; 39 : 10; 60 : 10 (or 6 : 1)
3. a. 4 : 3 b. 5 : 12
4. a. 7 : 20 b. 8 : 5
5. 14 : 15

Lesson 7.2
1. 12
2. 56
3. 56
4. 72
5. 9
6. 8
7. 9
8. 8
9. 2 : 3
10. 5 : 2
11. 7 : 4
12. 3 : 5
13. 8 : 5
14. 11 : 13
15. 2 : 3
16. 4 : 1

Lesson 7.3
1. a. $4 : 5 = 60 : 75$
   He uses 75 blue tiles.
   b. $9 : 4 = 540 : 240$
   He uses 240 gray tiles.
2. a. $5 : 3 = 30 : 18$
   The building is 30 meters tall.
   b. $5 : 3 = 45 : 27$
   The shadow will be 27 meters long.

Extra Practice 5A
3. \(16 - 4 = 12\)
   \(18 + 3 = 21\)
   \(21 : 12 : 7 : 4\)
   The ratio of the number of boys to the number of girls is 7 : 4.

4. 2 units \(\rightarrow\) 16 in.
   1 unit \(\rightarrow\) \(16 \div 2 = 8\) in.
   Length = \(5 \times 8\)
   = 40 in.
   Width = \(3 \times 8\)
   = 24 in.
   Area of rectangle = \(40 \times 24\)
   = 960 in.\(^2\)

**Lesson 7.4**

1. \(8 : 5\)
2. \(\frac{8}{5}\)
3. \(\frac{5}{8}\)
4. \(\frac{8}{13}\)
5. \(\frac{13}{5}\) times
6. \(\frac{3}{8}\)
7. \(\frac{3}{8}\)
8. \(\frac{2}{3}\) times

**Lesson 7.5**

1. 35; 20
2. 9; 18
3. 28; 36
4. 35; 63
5. \(3 : 2 : 5\)
6. \(6 : 3 : 5\)
7. \(3 : 5 : 8\)

**Lesson 7.6**

1. Keisha’s age this year = 12 + 3
   = 15 years
   Sarah’s age : Keisha’s age = \(4 : 5 = 12 : 15\)
   Ratio in 9 years = \((12 + 9) : (15 + 9)\)
   = \(21 : 24\)
   = \(7 : 8\)
   The ratio of Sarah’s age to Keisha’s age
   in 9 years is 7 : 8.
2. Distance dog runs : Distance cat runs
   = \(7 : 4\)
   \(7 - 4 = 3\)
   \(12 \div 3 = 4\) times
   \(4 \times 7 = 28\)
   The dog has to run 28 meters.

**Put on Your Thinking Cap!**

1. Thinking skill: Analyzing parts and whole
   Strategy: Use a model
   Solution:
   Blue
   Red
   Green
   162
   3 units \(\rightarrow\) 162
   1 unit \(\rightarrow\) \(162 \div 3 = 54\)
   7 units \(\rightarrow\) \(7 \times 54 = 378\)
   2 units \(\rightarrow\) 378
   1 unit \(\rightarrow\) \(378 \div 2 = 189\)
   3 units \(\rightarrow\) \(3 \times 189 = 567\)
   There are 567 ribbons in the basket.
2. Thinking skill: Analyzing parts and whole
   Strategy: Use a model
   Solution:
   Matthew
   Ava
   178
   3 units \(\rightarrow\) \$78
   1 unit \(\rightarrow\) \$78 \div 3 = \$26
   14 units \(\rightarrow\) \(14 \times \$26 = \$364\)
   They have $364 altogether.
3. **Thinking skill: Analyzing parts and whole**
   Strategy: Use a model
   Solution:
   | Chloe | 4 units | 108 |
   | Diane | 1 unit | 108 |
   
   6 units → 18
   1 unit → 18 ÷ 6 = 3
   16 units → 16 × 3 = 48
   They have 48 books altogether.

4. **Thinking skill: Analyzing parts and whole**
   Strategy: Use a model
   Solution:
   | Square tiles | 79 | 106 |
   | Triangular tiles | 18 |

   5 units → 79 + 106 = 185
   1 unit → 185 ÷ 5 = 37
   11 units → 11 × 37 = 407
   There were 407 tiles in the box at first.

5. **Thinking skill: Analyzing parts and whole**
   Strategy: Use a model
   Solution:
   | Apples | 261 |
   | Pears | 261 |

   3 units → 261 + 261 = 522
   1 unit → 522 ÷ 3 = 174
   2 units → 2 × 174 = 348
   He had 348 apples at first.

6. **Thinking skill: Analyzing parts and whole**
   Strategy: Use a model
   Solution:
   a. **Method 1**
      Andy
      Bobby
      The new ratio was 9 : 5.

   **Method 2**
   Andy’s collection : Bobby’s collection
   = 2 : 5
   = 4 : 10
   (4 + 5) : (10 - 5) = 9 : 5
   The new ratio was 9 : 5.

   b. 4 units → 108
      1 unit → 108 ÷ 4 = 27
      10 units → 10 × 27 = 270
      Bobby had 270 antique coins at first.

7. **Thinking skill: Analyzing parts and whole**
   Strategy: Use a model
   Solution:
   | Michael | 2 units | 118 |
   | Samuel | 1 unit | 118 |
   | Rayston | 15 units | 15 × 59 = 885 |
   There were 885 marbles in the box.

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**Mid-Year Test**


41. **Blue**
   **Green**
   **White**
   9 units → 1,350
   1 unit → 1,350 ÷ 9 = 150
   4 units → 4 × 150 = 600
   600 green beads are used.
42. Area of triangle \( BDC = \frac{1}{2} \times 12 \times 12 \)
    \[ = 72 \text{ cm}^2 \]
Area of square \( GEFC = 6 \times 6 \)
    \[ = 36 \text{ cm}^2 \]
Area of triangle \( EDF = \frac{1}{2} \times (12 + 6) \times 6 \)
    \[ = 54 \text{ cm}^2 \]
Shaded area = \( BDC + GEFC - EDF \)
    \[ = 72 + 36 - 54 \]
    \[ = 54 \text{ cm}^2 \]

43.

17 units ➔ 102
1 unit ➔ 102 ÷ 17 = 6
8 units ➔ 8 × 6 = 48
9 units ➔ 9 × 6 = 54
She made 48 chicken sandwiches and 54 tuna sandwiches.

44. a. Number of red balls = 48 ÷ 3
    \[ = 16 \]
Number of white balls = 30 ÷ 5
    \[ = 6 \]
Total number of balls = 16 + 6 + 30 + 48
    \[ = 100 \]
There are 100 balls altogether.

b. \( 1 - \frac{7}{10} = \frac{3}{10} \)
\[ \frac{3}{10} \times 100 = 30 \]
30 balls will be left.

45. Ben
    \[ \begin{array}{c}
    \text{Eaten} \\
    \text{Given}
    \end{array} \]
    1
Leon
    \[ \begin{array}{c}
    \text{Eaten} \\
    \text{Given}
    \end{array} \]
    3
Pete
    \[ \begin{array}{c}
    \text{Eaten} \\
    \text{Given}
    \end{array} \]
    30

a. 2 units ➔ 30
1 unit ➔ 30 ÷ 2 = 15
14 units ➔ 14 × 15 = 210
They have 210 marbles altogether.

b. 210 ÷ 3 = 70
3 units ➔ 3 × 15 = 45
70 − 45 = 25
25 more marbles must be given to Pete.