

# Answers

## Chapter 1

1. Thinking skill: Comparing

Solution:

7,455	●	●	five thousand, seven hundred forty-three
4,542	●	●	two thousand, six hundred forty
1,093	●	●	five thousand, four hundred eighty-three
5,483	●	●	seven thousand, four hundred fifty-five
5,743	●	●	one thousand, ninety-three
2,640	●	●	four thousand, five hundred forty-two

<u>7,455</u>	<u>5,743</u>	<u>5,483</u>	<u>4,542</u>	<u>2,640</u>	<u>1,093</u>
greatest					least

2. 1,995                      3. 1,000  
 4. 8,502                    5. 100  
 6. 10                        7. PANDA  
 8. Thinking skill: Deduction (general to specific)

Solution:

List all single digits excluding 0 and 2.

1 3 4 5 6 7 8 9

The least possible number would then be 1,345 but the sum of the digits is less than 14. So we discard 5 (the greatest of the 4 digits) and use 6 instead.

$$1 + 3 + 4 + 6 = 14$$

The number is 1,346.

9. Thinking skill: Comparing

Solution:

$$\$1,975 - \$200 = \$1,775$$

$$\$1,775 - \$1,675 = \$100$$

Paul saved \$100 more than Danny.

10. 4,604, 4,624, 4,644, 4,664  
 11. 7,195, 7,395, 7,595, 7,795, 7,995  
 12. 2,806, 2,816, 2,836, 2,846, 2,866, 2,876, 2,896, 2,906  
 13. The four digits rotate in the pattern.  
 5,847  
 8,475  
 4,758  
 7,584  
 5,847, 8,475, 4,758, 7,584, 5,847

14. Strategy: Look for patterns

Solution:

The sum of the ones digits is 19.

$$19 - 8 = 11$$

The ones digit of the second number (5) is 1 less than the ones digit of the third number (6).

The tens digit of the second number is 2 less than 6.

$$6 - 2 = 4$$

The tens digit of the second number (4) is twice the tens digit of the first number (2).

$$7, 1 \boxed{2} 8$$

$$2, 1 \boxed{4} \boxed{5}$$

$$2, 4 9 \boxed{6}$$

15. Strategy: Look for patterns

Solution:

The sum of the digits in each 4-digit number is equal to the number below that 4-digit number.

$$20 - 4 - 2 - 9 = 5$$

The missing digit is 5.

16. 8,543                      17. 854  
 18. 3,458                    19. 345  
 20. 4,928 5,938 6,948 7,958 8,968 9,978  
 or  
3,918 4,928 5,938 6,948 7,958 8,968  
 21. 4,736 4,846 4,956 5,066 5,176 5,286  
 Rule: Add 110.

22. Answers will vary.

Sample:

8,092 is greater than 5,892 and 6,992.

6,992 is less than 8,092.

1,100 more than 5,892 is 6,992.

1,100 less than 9,192 is 8,092.

## Chapter 2

1. 62  
 2. 32  
 3. 129  
 4. a. Thinking skills: Comparing, analyzing parts and whole

Solution:

$$900 + 700 = 1,600$$

The total distance is about 1,600 miles.

b. Thinking skill: Comparing

Solution:

Actual distance traveled is

$$851 \text{ mi} + 675 \text{ mi} = 1,526 \text{ mi}$$

$$1,600 \text{ mi} - 1,526 \text{ mi} = 74 \text{ mi}$$

The difference between the estimated distance and the actual distance traveled is 74 miles.

5. Thinking skill: Analyzing parts and whole

Solution:

Items	Weight	Front-End Estimation
Fish	230 oz	200 oz
Cabbage	203 oz	200 oz
Carrots	386 oz	300 oz
Grapes	250 oz	200 oz
		900 oz

The total weight is about 900 ounces.

6. Strategy: Look for patterns

Solution:

The number of blocks is increasing by 2 each time.

So,

$$4\text{th step} \rightarrow 17$$

$$5\text{th step} \rightarrow 19$$

$$6\text{th step} \rightarrow 21$$

$$17 + 19 + 21 = 57$$

7. Thinking skill: Work backward

Solution:

Least possible value that rounds to 600 is 550.

So, working backward,

$$550 - 23 = 527$$

8. Thinking skill: Work backward

Solution:

Greatest possible number of stickers that Aiesha had: 349

After giving 52 stickers to her sister, both of them have:

$$349 - 52 = 297 \text{ stickers}$$

$$297 - 52 = 245 \text{ stickers}$$

The greatest possible number of stickers that Aiesha's sister had at first was 245.

9. **Method 1**

(add the tens and the ones and then regroup)

$$\begin{aligned} 78 + 46 &= 70 + 40 + 8 + 6 \\ &= 110 + 14 \\ &= 124 \end{aligned}$$

**Method 2**

(add 50, then subtract 4)

$$\begin{aligned} 78 + 46 &= 78 + 50 - 4 \\ &= 128 - 4 \\ &= 124 \end{aligned}$$

10. **Method 1**

(subtract 5 tens and then subtract 6 ones)

$$97 - 50 = 47$$

$$47 - 6 = 41$$

**Method 2**

(subtract 60 and add 4)

$$\begin{aligned} 97 - 56 &= 97 - 60 + 4 \\ &= 37 + 4 \\ &= 41 \end{aligned}$$

11. Answers will vary.

Sample:

$$72 + 36 = 108$$

**Step 1** Adding 36 is the same as adding 40 and then subtracting 4.

**Step 2** Sum of 72 and 40 is 112.

**Step 3** 112 minus 4 is 108. The answer is 108.

12.  $63 - 27 = 36$

**Step 1** Subtracting 27 is the same as subtracting 30 and then adding 3.

**Step 2** 63 minus 30 is 33.

**Step 3** Then add 3 to 33. The answer is 36.

13. Keith rounded 154 to 100 and 668 to 600. He should have rounded 154 to 200 and 668 to 700.

14. Keith rounded 127 to 200. He should have rounded 127 to 100.

### Chapter 3

1. Thinking skill: Comparing

Solution:

$$2,543 + 4,235 = 6,778$$

2. Thinking skill: Analyzing parts and whole

Solution:

$$2,039 + 1,476 = 3,515$$

$$3,515 + 3,515 = 7,030$$

The total weight of rice in both containers is 7,030 ounces.

3. Strategy: Comparing  
Solution:  
Kate  $\rightarrow$  128  
Lyra  $\rightarrow$   $128 + 128 = 256$   
Gabi  $\rightarrow$   $256 + 256 + 256 = 768$   
Gabi has 768 marbles.
4. Strategy: Make a supposition  
Solution:  

$$\begin{array}{r} 1, 1 3 4 \\ + 2, 2 1 3 \\ \hline 3, 3 4 7 \end{array}$$
 A = 1; B = 2; C = 3; D = 4
5. Strategy: Guess and check  
Solution:  
 $987 + 65 + 43 + 2 + 1 = 1,098$
6. Strategy: Work backward  
Solution:  
Cost of TV:  
 $\$1,670 + \$257 = \$1,927$   
 $\$1,927 + \$1,670 + \$1,205 = \$4,802$   
Peter had \$4,802 at first.
7. Sum of thousands digits:  $1 + 1 = 2$   
Hundreds digit (2) is twice the thousands digit (1).  
Tens digit of each number is twice the hundreds digit (2).  
 $2 + 2 = 4$   
Ones digit of the greater number is the same as its tens digit (4).  
The greater number is 1,244.  
The other number:  $1,244 - 1 = 1,243$
8. The possible pairs of (X, Y) are (9, 3), (8, 4), (7, 5), (6, 6), (3, 9), (4, 8), and (5, 7).  
The possible pairs of (A, B) are (9, 4), (8, 5), (7, 6), (4, 9), (5, 8), and (6, 7).
9. The sum of the first and second number is 1,000.  
The sum of the third and fourth number is 1,000.  
 $720 + 280 = 1,000$   
 $620 + 380 = 1,000$   
 $520 + 480 = 1,000$   
 $420 + 580 = 1,000$   
 $720 + 280 + 620 + 380 + 520 + 480$   
 $+ 420 + 580$   
 $= 1,000 + 1,000 + 1,000 + 1,000$   
 $= 4,000$

10. Step 1 There is no regrouping in the tens place.  
Step 2 There is no regrouping in the thousands place.  
Step 3 So, the sum of X and Y is 2.  
The possible pairs of (X, Y) are (1, 1), (0, 2), and (2, 0).
11. Step 1 The sum of the digits in the thousands place is 1 more than  $3 + 4$ .  
Step 2 So, there is regrouping in the hundreds place.  
Step 3 So, the sum of A and B is 12.  
The possible pairs of (A, B) are (9, 3), (8, 4), (7, 5), (6, 6), (3, 9), (4, 8), and (5, 7).

## Chapter 4

1. 2,833
2. Thinking skill: Comparing  
Solution:  
The second greatest number is 5,691.  
The second least number is 4,327.  
 $5,691 - 4,327 = 1,364$
3. Thinking skill: Analyzing parts and whole  
Solution:  
 $1,968 - 489 - 847 - 97 = 535$   
She has 535 balloons left.
4. Thinking skill: Comparing, sequencing  
Solution:  
 $9,403 - 2,349 = 7,054$   
 $9,403 - 4,369 = 5,034$   
 $4,369 - 2,349 = 2,020$   

2,020	5,034	7,054
least		greatest

 Winton's 2-digit password is 25.
5. Strategy: Analyzing parts and whole  
Solution:  
 $4,006 - 2,628 = 1,378$   
 $2,628 - 1,378 = 1,250$
6. Strategy: Guess and check  
Solution:  

(4)	(1)	0	(7)
-	1	,	0
-	(2)	,	9
-----			
3	,	0	7 8

## Chapter 5

7. Strategy: Guess and check

Solution:

$$9,876 - 5,432 - 1 = 4,443$$

8. 3,466, 3,456, 3,436, 3,396, 3,316, 3,156

9. Strategy: Look for patterns

Solution:

4,494

Middle number is the difference of the numbers on the ends.

10. The possible pairs of (X, Y) are (1, 7), (2, 8), (3, 9), and (0, 6).

The possible pairs of (A, B) are (9, 5), (8, 4), (7, 3), (6, 2), (5, 1), and (4, 0).

11. The difference between the greatest 4-digit number and the least 4-digit number gives the greatest difference.

$$\begin{array}{r} 9, \overset{7}{\cancel{8}} \overset{13}{\cancel{4}} \overset{1}{\cancel{3}} \\ - 1, 3 4 8 \\ \hline 8, 4 9 5 \end{array}$$

12. 
$$\begin{array}{r} \overset{3}{\cancel{4}}, \overset{1}{\cancel{3}} \overset{7}{\cancel{8}} \overset{1}{\cancel{0}} \\ - 2, 9 0 5 \\ \hline 1, 4 7 5 \end{array}$$

**Step 1** 5 ones cannot be subtracted from 0 ones.

Regroup 8 tens 0 ones to 7 tens 10 ones.

10 ones minus 5 ones is 5 ones.

7 tens minus 0 tens is 7 tens.

**Step 2** 9 hundreds cannot be subtracted from 3 hundreds.

Regroup 4 thousands 3 hundreds to 3 thousands 13 hundreds.

13 hundreds minus 9 hundreds is 4 hundreds.

**Step 3** 3 thousands minus 2 thousands is 1 thousand.

13. Greg did not regroup the digits in 5,000. He subtracted the smaller digits from the larger digits.

14. Greg did not subtract the regrouped ones and hundreds digits.

1. Thinking skill: Comparing

Solution:

Hannah's stamps:

$$1,286 - 454 = 832$$

Difference between Hannah's and Olivia's stamps:

$$832 - 454 = 378$$

Hannah collects 378 more stamps than Olivia.

2. Thinking skill: Comparing

Solution:

Thomas' and John's savings:

$$\$109 + \$193 = \$302$$

Lily's saving:

$$\$397 - \$302 = \$95$$

$$\$109 - \$95 = \$14$$

John saves \$14 more than Lily.

3. Thinking skill: Comparing

Solution:

Mary's baseball cards:

$$1,765 - 1,483 = 282$$

Jennifer's baseball cards:

$$282 + 282 = 564$$

Emma's baseball cards:

$$1,765 - 564 = 1,201$$

Emma has 1,201 baseball cards.

4. Strategy: Use a diagram

Solution:

$$183 + 183 + 56 + 183 + 183 + 56 = 844$$

The sum of the CDs in all three boxes is 844.

5. Strategy: Use a diagram

Solution:

Abigail's blocks = 56

Ashley's blocks = 56 + 56 = 112

William's blocks = 112 + 112 = 224

$$56 + 112 + 224 = 392$$

Jessica gives them 392 blocks in all.

6. Strategy: Use a diagram

Solution:

Boys in the hall = 21 + 21 + 21 = 63

$$63 + 21 + 105 = 189$$

There were 189 children in the hall at first.

7. Strategy: Use a diagram

Solution:

Taylor's baseball cards:

$$1,132 - 754 = 378$$

Sophia's baseball cards:

$$378 + 378 = 756$$

Mickey's baseball cards:

$$754 - 378 = 376$$

$$378 + 756 + 376 = 1,510$$

They have 1,510 baseball cards in all.

8. Strategy: Use a diagram

Solution:

### Number of Marbles

After	Before
Aleesha now has = $36 + 56 + 138$ = 230.	Aleesha had 36.
Emma now has = $230 + 89$ = 319.	Emma had $319 + 56 = 375$ .
Natalie now has = $230 - 105$ = 125.	Natalie had $125 + 138 = 263$ .

$$375 + 263 = 638$$

Emma and Natalie had 638 marbles at first.

9. Answers will vary.

Sample:

### Method 1

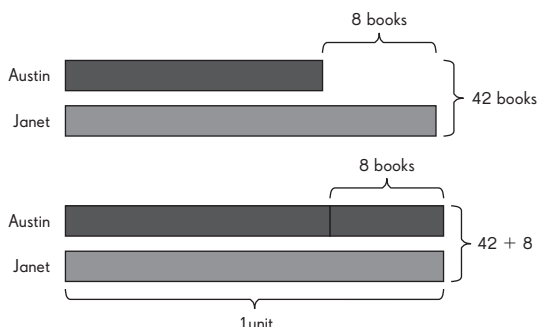


$$2 \text{ units} \rightarrow 42 - 8 = 34$$

$$1 \text{ unit} \rightarrow 17$$

Austin read 17 books.

### Method 2



Add 8 to the number of books Austin and Janet together read to get 2 units.

$$2 \text{ units} \rightarrow 42 + 8 = 50$$

$$1 \text{ unit} \rightarrow 25$$

$$25 - 8 = 17$$

Austin read 17 books.

10. Answers will vary.

Sample:

96 students took part in a swimming competition.

There were 12 more girls than boys in the competition.

Find the number of boys in the competition.



$$2 \text{ units} \rightarrow 96 - 12 = 84$$

$$1 \text{ unit} \rightarrow 42$$

The number of boys in the competition is 42.

11. Answers will vary.

Sample:

Sarah has 72 books. She has 45 more books than Anthony.

How many books do Anthony and Sarah have in all?

Solution:

**Step 1** Anthony's books:

$$72 - 45 = 27$$

**Step 2** Total number of books:

$$72 + 27 = 99$$

Anthony and Sarah read 99 books in all.

12. Answers will vary.

Sample:

Brandon and Ava have 84 toys in all.

Brandon has 32 less toys than Ava.

How many toys does Ava have?

Solution:

**Step 1** Total number of toys = 84

$$2 \text{ units} + 32 = 84$$

$$1 \text{ unit} \rightarrow 26$$

**Step 2** Ava's toys:

$$26 + 32 = 58$$

Ava has 58 toys.

## Chapter 6

1. Thinking skill: Comparing

Solution:

9	4	8	32	40	4
3	7	21	63	84	9
27	28	63	95	30	36
9	6	54	5	8	40
57	34	6	9	7	16
20	11	72	45	56	35

2. Thinking skill: Deduction

Solution:

$$6 \quad 12 \quad 18 \quad \mathbf{24} \quad 30$$

$$8 \quad 16 \quad \mathbf{24} \quad 32$$

The least number of pencils that the bag may contain is 24.

3. Thinking skill: Comparing

Solution:

$$6 \times 6 = 36$$

$$7 \times 3 = 21$$

$$8 \times 3 = 24$$

$$2 \times 6 = 12$$

Number of times letter A appears in all:

$$36 + 21 + 24 + 12 = 93$$

4. Thinking skill: Comparing

Solution:

$$3 \times \$7 = \$21$$

$$3 \times \$9 = \$27$$

Money Kim makes:

$$\$27 - \$21 = \$6$$

$$5 \times \$8 = \$40$$

$$5 \times \$6 = \$30$$

Money Kim loses:

$$\$40 - \$30 = \$10$$

Money Kim loses in all:

$$\$10 - \$6 = \$4$$

Kim loses \$4 in all.

5. C = 6; D = 3

6. F = 9; G = 8; H = 1

7. K = 6; L = 7; M = 4; N = 2

8. A = 12; B = 6

9. Strategy: Guess and check

Solution:

$$\triangle \times 8 = 56$$

$$\triangle = 56 \div 8$$

$$= 7$$

$$4 + 3 = 7$$

$$4 - 3 = 1$$

$$\square = 4$$

$$\circ = 3$$

10. Strategy: Guess and check

Solution:

$$\heartsuit \times 9 = 54$$

$$\heartsuit = 54 \div 9$$

$$= 6$$

$$14 - 8 = 6$$

14 and 8 are numbers between 7 and 15.

$$\diamond = 14$$

$$\star = 8$$

11. Strategy: Work backward

Solution:

Eugene's toy cars + Brandon's toy cars:

$$6 + 3 = 9 \text{ units}$$

$$2 \text{ units} \rightarrow 18$$

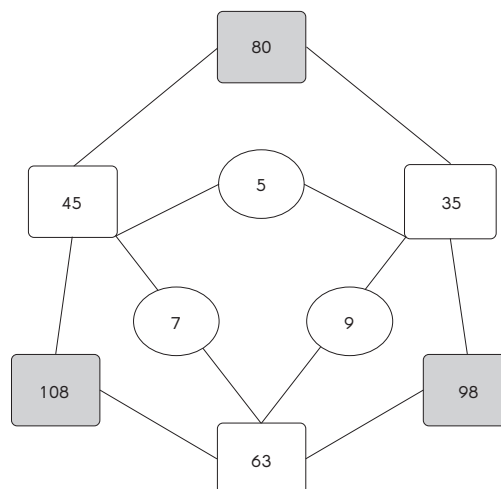
$$1 \text{ unit} \rightarrow 9$$

$$9 \times 9 = 81$$

Eugene and Brandon have 81 toy cars in all.

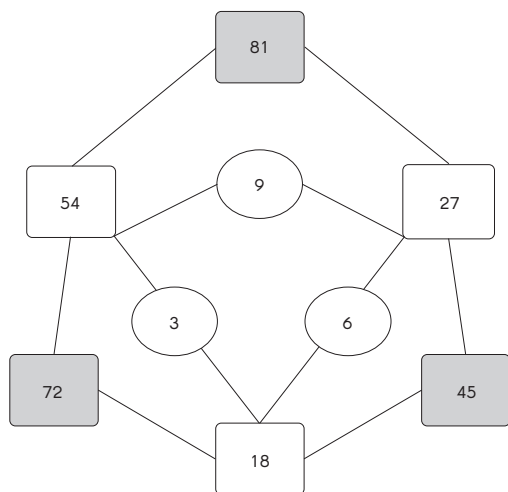
12. Strategy: Use a diagram, look for patterns

Solution:

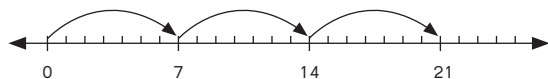


13. Strategy: Use a diagram, look for patterns

Solution:



14. **Method 1**



**Method 2**

$$\begin{aligned} 7 \times 3 &= 7 \text{ groups of } 3 \\ &= 5 \text{ groups of } 3 + 2 \text{ groups of } 3 \\ &= 5 \times 3 + 2 \times 3 \\ &= 15 + 6 \\ &= 21 \end{aligned}$$

**Method 3**

$$\begin{aligned} 7 \times 3 &= 3 \times 7 \\ &= 3 \text{ groups of } 7 \\ &= 10 \text{ groups of } 7 - 7 \text{ groups of } 7 \\ &= 10 \times 7 - 7 \times 7 \\ &= 70 - 49 \\ &= 21 \end{aligned}$$

15.  $\$9 \times 5 = \$45$   
 He bought 5 flower pots for \$45.  
 $\$7 \times 5 = \$35$   
 He sold the 5 flower pots for \$35.  
 $\$45 - \$35 = \$10$   
 He lost \$10 in the first transaction.  
 $\$6 \times 3 = \$18$   
 He bought 3 flower pots for \$18.  
 $\$10 + \$18 = \$28$   
 He needs to sell the 3 flower pots for at least \$28 so that he does not lose any money.

Guess	Check	> \$28?
\$8	$\$8 \times 3 = \$24$	No
\$9	$\$9 \times 3 = \$27$	No
\$10	$\$10 \times 3 = \$30$	Yes

Casey must sell each flower pot for at least \$10.

16. Answers will vary.

Sample:

There are 4 spiders and 5 beetles.

Find the total number of legs of the spiders and beetles in all.

Solution:

$$(4 \times 8) + (5 \times 6) = 32 + 30 = 62$$

The total number of legs of the spiders and beetles in all is 62.

17. Answers will vary.

Sample:

In a game, Mrs. Corry groups boys into 3 groups of 6 and girls into 2 groups of 7.

How many students are there in all?

Answer: 32

**Chapter 7**

1. Thinking skill: Analyzing parts and whole

Solution:

$$\begin{aligned} &995; 45 \\ &199 \times 5 = 995 \\ &5 \times 9 = 45 \end{aligned}$$

2. Thinking skills: Comparing, analyzing parts and whole

Solution:

Answers will vary.

Sample:

$$\begin{aligned} &64 \times 2/3/4/5 \\ &81 \times 2/3/4/5 \\ &121 \times 2/3/4 \\ &169 \times 2 \end{aligned}$$

3. Thinking skills: Comparing, analyzing parts and whole

Solution:

Answers will vary.

Sample:

$$\begin{aligned} &121 \times 5 \\ &169 \times 3/4 \end{aligned}$$

4. Thinking skills: Comparing, analyzing parts and whole

Solution:

$$169 \times 5$$

5. Thinking skills: Comparing, analyzing parts and whole

Solution:

$$\begin{aligned} &\text{Cost of 3 chairs: } \$35 \times 3 = \$105 \\ &\text{Cost of 1 table: } \$105 + \$85 = \$190 \\ &\text{Cost of 5 tables: } \$190 \times 5 = \$950 \end{aligned}$$

6. Thinking skill: Deduction

Solution:

$$\begin{aligned} \square &= 24 \\ \diamond &= 30 \\ \oplus &= 120 \\ \square + \diamond + \oplus &= 174 \end{aligned}$$

7. Strategy: Guess and check

Solution:

Guess	Check	999
1	$111 \times 1 = 111$	No
3	$333 \times 3 = 999$	Yes

The digit is 3.

8. Strategy: Look for patterns

Solution:

The number in rectangle is the product of numbers in the ovals.

$$125 \times 5 = 625$$

9. Strategy: Look for patterns

Solution:

$$\begin{aligned} &11 + 13 + 15 + 17 + 19 + 21 + 23 + 25 \\ &= (11 + 25) + (13 + 23) + (15 + 21) \\ &\quad + (17 + 19) \\ &= 36 + 36 + 36 + 36 \\ &= 36 \times 4 \\ &= 144 \end{aligned}$$

10. Strategy: Look for patterns

Solution:

$$\begin{aligned} &8 + 16 + 24 + 32 + 40 + 48 + 56 + 64 \\ &\quad + 72 + 80 \\ &= (8 + 80) + (16 + 72) + (24 + 64) \\ &\quad + (32 + 56) + (40 + 48) \\ &= 88 + 88 + 88 + 88 + 88 \\ &= 88 \times 5 \\ &= 440 \end{aligned}$$

11. Strategy: Guess and check

Solution:

Guess	Check	210?
40 rabbits, 40 chickens	$40 \times 4 = 160$ $40 \times 2 = 80$ $160 + 80 = 240$	No
30 rabbits, 50 chickens	$30 \times 4 = 120$ $50 \times 2 = 100$ $120 + 100 = 220$	No
20 rabbits, 60 chickens	$20 \times 4 = 80$ $60 \times 2 = 120$ $80 + 120 = 200$	No
25 rabbits, 55 chickens	$25 \times 4 = 100$ $55 \times 2 = 110$ $100 + 110 = 210$	Yes

There are 25 rabbits and 55 chickens.

12.  $68$

$$\begin{array}{r} \times 4 \\ \hline \end{array}$$

$272$  Not possible

$$\begin{array}{r} \times 4 \\ \hline \end{array}$$

$312$   $A = 7$  and  $B = 1$

$$\begin{array}{r} \times 4 \\ \hline \end{array}$$

$352$   $A = 8$  and  $B = 5$

$$\begin{array}{r} \times 4 \\ \hline \end{array}$$

$392$  Not possible

Possible values of A and B are 7 or 8 and 1 or 5 respectively.



13.

$$\begin{array}{r} 132 \\ \times 3 \\ \hline 396 \end{array}$$

P = 1, Q = 2, R = 3, S = 6

$$\begin{array}{r} 231 \\ \times 3 \\ \hline 693 \end{array}$$

P = 2, Q = 1, R = 6, S = 3

$$\begin{array}{r} 233 \\ \times 3 \\ \hline 699 \end{array}$$

P = 2, Q = 3, R = 6, S = 9

$$\begin{array}{r} 332 \\ \times 3 \\ \hline 996 \end{array}$$

P = 3, Q = 2, R = 9, S = 6

$$\begin{aligned} 14. \quad & 1 + 2 + 3 + 4 + 5 + 5 + 6 + 7 + 8 + 9 \\ & = (1 + 9) + (2 + 8) + (3 + 7) + (4 + 6) \\ & \quad + (5 + 5) \\ & = 10 \times 5 \\ & = 50 \end{aligned}$$

**Step 1** Order into pairs of numbers that have the same sum (10).

**Step 2** Product of 10 and number of times 10 is added is the sum.

15. Larry did not regroup ones to tens after multiplying 8 by 3 or he may have forgotten to add the regrouped tens.

16. Larry has added the numbers.

17. Larry only multiplied the ones and tens.

## Chapter 8

1. Thinking skill: Knowledge recap

Solution:

			4	8
			1	
2		2	0	
4	0	0		
0				
0				

2. Thinking skill: Comparing

Solution:

$$95 \div 5 = 19$$

The numbers are 5 and 19.

3. Thinking skills: Identifying patterns and relationships, analyzing parts and whole

Solution:

$$\$80 \div \$5 = \$16$$

$$\$1 \times 16 = \$16$$

$$\$80 \div \$8 = \$10$$

$$\$2 \times 10 = \$20$$

$$\$80 + \$16 + \$20 = \$116$$

Sally will have \$116.

4. Thinking skill: Analyzing parts and whole

Solution:

$$93 \div 3$$

The larger group has 62 eggs.

The smaller group has 31 eggs.

Larger group:

$$62 \div 5 = 12 \text{ R } 2$$

Smaller group:

$$31 \div 3 = 10 \text{ R } 1$$

Total number of eggs not packed into trays:

$$2 + 1 = 3$$

3 eggs are not packed.

5. Strategies: Make a supposition, guess and check

Solution:

John's age could be 2, 4, 6, or 8 now.

Last year, his age could be 1, 3, 5, or 7.

Last year, he was 3 (divisible by 3).

At present, he is 4 years old.

$$3 + 4 = 7$$

Three years from now, he will be 7 years old.

6. Strategies: Make a supposition, guess and check

Solution:

a. A could be 2, 4, 6, or 8.

B could be 1, 3, 5, 7, or 9.

$$8 \div 1 = 8$$

A is 8 and B is 1.

b. A could be 2, 4, 6, 8, 10, 12, 14, 16, or 18.

B could be 2, 4, 6, 8, 10, 12, 14, 16, or 18.

$$16 \div 2 = 8$$

A is 16 and B is 2.

7. E = 7, F = 4, G = 1, and H = 2

8. Answers will vary.

Samples:

$$3 \times 2 + 1 = 7$$

$$4 \times 1 + 3 = 7$$

$$3 \times 6 + 1 = 19$$

$$4 \times 4 + 3 = 19$$

Possible values of the number are 7 or 19.

$$\begin{array}{r} 9. \quad \quad 16 \\ 5 \overline{) 83} \\ \underline{5} \phantom{0} \\ 33 \\ \underline{30} \\ \phantom{0} 3 \end{array}$$

**Step 1** Divide 8 tens by 5.

**Step 2** Quotient is 1 ten and remainder is 3 tens or 30 ones.

**Step 3** Divide 33 ones by 5.

**Step 4** Quotient is 6 ones and remainder is 3 ones.

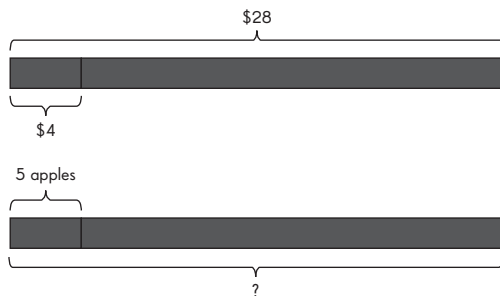
10.  $87 \div 3 = 2$  tens 9 ones

11.  $70 \div 4 = 1$  ten 7 ones with remainder 2 ones

## Chapter 9

1. Thinking skills: Identifying patterns and relationships, analyzing parts and whole

Solution:



$$28 \div 4 = 7$$

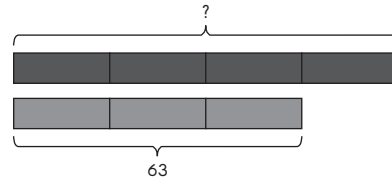
She can buy 7 groups of 5 apples.

$$7 \times 5 = 35$$

She can buy 35 apples.

2. Thinking skills: Identifying patterns and relationships, analyzing parts and whole

Solution:



$$63 \div 3 = 21$$

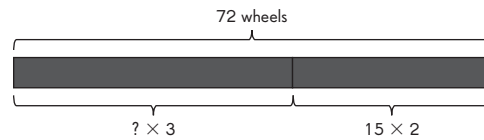
The result of the number divided by 4 is 21.

$$21 \times 4 = 84$$

The number is 84.

3. Thinking skills: Identifying patterns and relationships, analyzing parts and whole

Solution:



$$15 \times 2 = 30$$

The bicycles have a total of 30 wheels.

$$72 - 30 = 42$$

The tricycles have a total of 42 wheels.

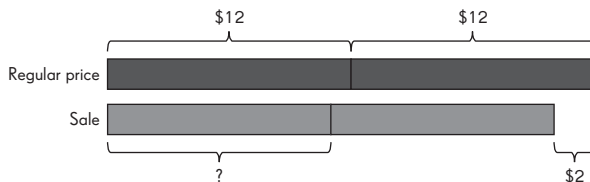
$$42 \div 3 = 14$$

There are 14 tricycles.

4. Thinking skills: Comparing, analyzing parts and whole

Solution:

a.



Cost of 2 pairs of socks:

$$\$12 \times 2 = \$24$$

Cost of 2 pairs of socks at the sale:

$$\$24 - \$2 = \$22$$

Cost of 1 pair of socks at the sale:

$$\$22 \div 2 = \$11$$

b.



$$\$11 \times 6 = \$66$$

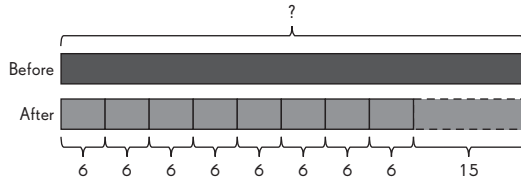
The cost of 6 pairs of socks during the sale is \$66.

$$\$66 + \$12 = \$78$$

Peter pays \$78 in all.

5. Strategy: Work backward

Solution:



Total number of peaches in the bags in all:

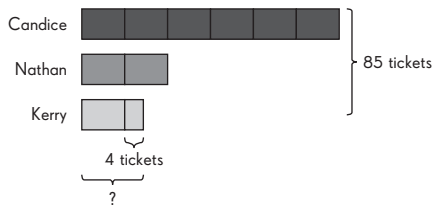
$$8 \times 6 = 48$$

$$48 + 15 = 63$$

The fruit seller had 63 peaches at first.

6. Strategy: Use a diagram

Solution:



$$85 - 4 = 81$$

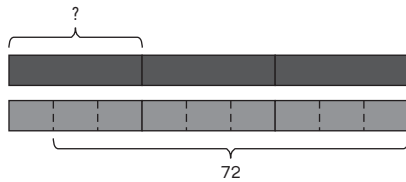
$$81 \div 9 = 9$$

$$9 + 4 = 13$$

Kerry sold 13 tickets.

7. Strategy: Use a diagram

Solution:



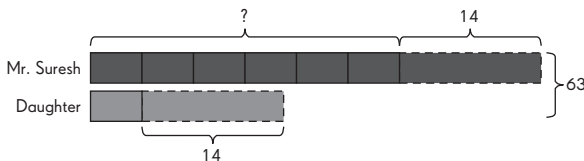
$$72 \div 8 = 9$$

$$9 \times 3 = 27$$

The number is 27.

8. Strategy: Use a diagram

Solution:



$$63 - 14 - 14 = 35$$

Their total age now is 35 years.

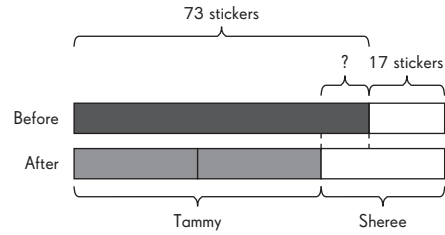
$$35 \div 7 = 5$$

$$5 \times 6 = 30$$

Mr. Suresh is 30 years old now.

9. Strategy: Use a diagram

Solution:



$$73 + 17 = 90$$

They have 90 stickers in all.

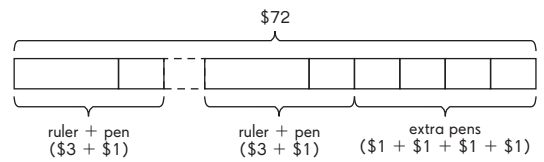
$$90 \div 3 = 30$$

$$30 - 17 = 13$$

Tammy gave 13 stickers to Sheree.

10. Strategies: Use a diagram, simplify the problem

Solution:



Cost of 1 pen is \$1.

Cost of 1 ruler is \$3.

$$\$72 - \$4 = \$68$$

$$\$68 \div \$4 = 17$$

$$17 + 4 = 21$$

He buys 21 pens.

11. **Method 1**

Before



After



$$2 \text{ units} \rightarrow 48$$

$$1 \text{ unit} \rightarrow 24$$

Now, each girl has 24 beads.

Number of beads they had at first:

$$24 + 15 = 39$$

Lily had 39 beads.

$$24 - 15 = 9$$

Mary had 9 beads.

**Method 2**

Make a list or a table

**Number of Beads**

	Lily	Mary	Total
After	24	24	48
Add/Subtract 15	+15	-15	
Before	39	9	48

Lily had 39 beads and Mary had 9 beads.

12. Answers will vary.

Sample:

Sam saves three times as much as Belinda.

Kay saves twice as much as Belinda.

They save \$105 in all.

How much money does Sam save?



6 units → \$105

1 unit → \$17.50

3 units → \$52.50

Sam saves \$52.50.

13. Answers will vary.

Sample:

Claire had 28 blocks at first.

She got another 15 blocks from Eric and 32 blocks from Audrey.

She arranged the blocks into 4 groups of 18 blocks each.

How many blocks were left?

Number of blocks Claire had:

$$28 + 15 + 32 = 75$$

Number of blocks arranged into groups:

$$18 \times 4 = 72$$

Blocks left:

$$75 - 72 = 3$$

3 blocks were left.

14. Answers will vary.

Sample:

Anna, David, and Julia have 106 trading cards in all.

David has twice as many trading cards as Anna.

Julia has 16 more trading cards than David.

How many trading cards do Anna and David have in all?

$$106 - 16 = 90$$

5 units → 90

1 unit → 18

3 units → 54

Anna and David have 54 trading cards in all.