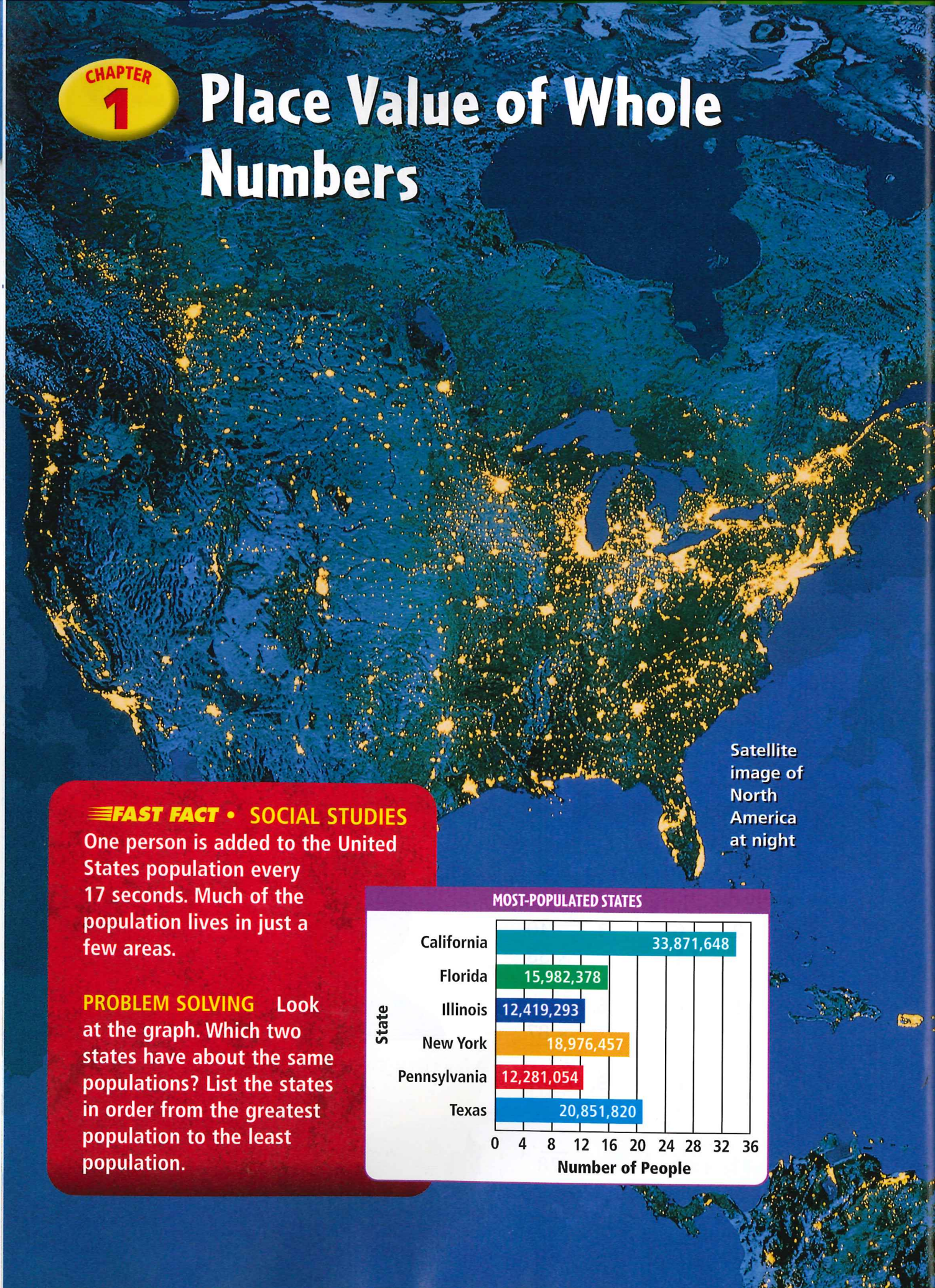# CHAPTER 1
Place Value of Whole Numbers
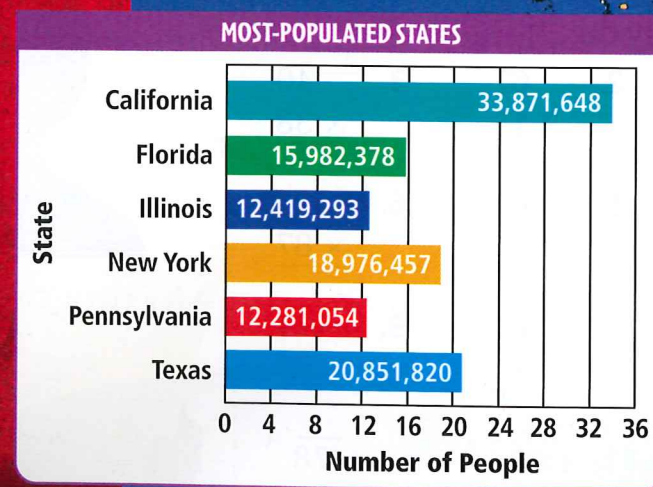
Satellite image of North America at night

FAST FACT • SOCIAL STUDIES
One person is added to the United States population every 17 seconds. Much of the population lives in just a few areas.

PROBLEM SOLVING Look at the graph. Which two states have about the same populations? List the states in order from the greatest population to the least population.

MOST-POPULATED STATES

State	Number of People
California	33,871,648
Florida	15,982,378
Illinois	12,419,293
New York	18,976,457
Pennsylvania	12,281,054
Texas	20,851,820

0 4 8 12 16 20 24 28 32 36
Number of People

CHECK WHAT YOU KNOW

Use this page to help you review and remember important skills needed for Chapter 1.

PLACE VALUE

Write the value of the digit 6 in each number.

1. 62,980
2. 368
3. 56,709
4. 906

Write the value of the blue digit.

5. 560
6. 3,072
7. 47,092
8. 30,561
9. 6,257
10. 13,348
11. 97,812
12. 20,465

READ AND WRITE WHOLE NUMBERS

Write each number in two other forms.

13. sixteen thousand, forty
14. 50,000 + 4,000 + 200 + 4
15. eighty-seven thousand, forty-two
16. 20,000 + 3,000 + 50 + 6

Write the number in expanded form.

17. 387
18. 2,412
19. 43,671
20. 35,902
21. 60,234
22. 12,084
23. 13,087
24. 92,530

Write the number in word form.

25. 409
26. 2,010
27. 5,102
28. 73,249
29. 14,013
30. 89,738
31. 30,952
32. 16,870

VOCABULARY POWER

REVIEW

digit [di'jit] *noun*

Digit is one of the oldest mathematical words. In addition to meaning "a numeral," *digit* can also mean "a finger or a toe." Name two ways the word *digital* is used today.

PREVIEW

billion
benchmark

GO ON-LINE
www.harcourtschool.com/mathglossary

Understand Place Value

▶ Learn

BUSY BEES Mr. Howard is a beekeeper. He raises bees for the honey they produce. His two colonies have about 128,000 bees. To understand how many bees this is, you need to understand the place value of each digit in 128,000.

MATH IDEA Each digit in a number has a place value. The value of a digit depends on its place, or position, in the number.

The place value of the digit 8 in 12**8**,000 is thousands. The value of 8 in 12**8**,000 is $8 \times 1,000 = 8,000$.

Remember

Starting from the right, each group of three digits forms a period. Commas separate the periods.

Technology Link

More Practice:
Harcourt Mega Math
The Number Games,
Tiny's Think Tank,
Level A

PERIOD					
THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones
1	2	8,	0	0	0
$1 \times 100,000$	$2 \times 10,000$	$8 \times 1,000$	0×100	0×10	0×1
100,000	20,000	8,000	0	0	0

Standard Form: 128,000

Expanded Form: $100,000 + 20,000 + 8,000$

Word Form: one hundred twenty-eight thousand

Examples

A

Standard Form: 2,641

Expanded Form: $2,000 + 600 + 40 + 1$

Word Form: two thousand, six hundred forty-one

B

Standard Form: 97,508

Expanded Form: $90,000 + 7,000 + 500 + 8$

Word Form: ninety-seven thousand, five hundred eight

▶ Check

1. **Explain** how to find the value of the digit 4 in the number 2,467.

Write the value of the blue digit.

2. 5**6**7   3. 3**8**   4. 6,**4**59   5. 45,0**8**8   6. 1**2**3,047

Write each number in expanded form and in word form.

7. 430   8. 36,025   9. 8,922   10. 12,608   11. 690,000

▶ Practice and Problem Solving (Extra Practice, page 16, Set A)

Write the value of the blue digit.

12. 9**7**9   13. **3**45,671   14. 23,**8**74   15. 8**6**1,113   16. 9**0**9,904

Write each number in expanded form and in word form.

17. 653   18. 44,703   19. 1,922   20. 723,651   21. 400,230

Write each number in standard form.

22. $70,000 + 6,000 + 400 + 10 + 8$ 23. $600,000 + 20,000 + 1,000 + 70 + 3$

24. twenty-five thousand, seventy-five   25. four hundred sixteen thousand, three hundred twelve

26. A truck driver delivers 20,000 honey jars to 3 grocery stores. If 10,200 jars are delivered to the first grocery store, 1,600 to the second, and the remaining jars to the third store, how many jars are delivered to the third store?

27. A butterfly migrated four thousand, eight hundred twenty-eight kilometers! Write this number in standard form.

28. **Vocabulary Power** In some sports, *periods* are the equal portions of time into which a game is divided. How does this relate to the *periods* of a number?
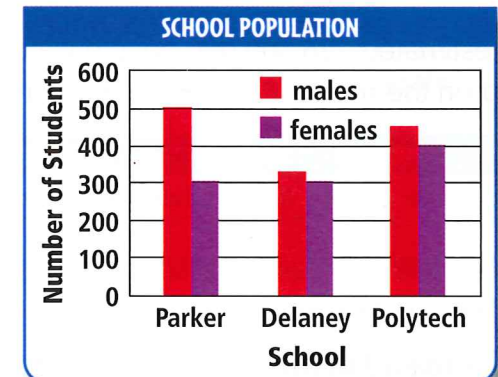
Mixed Review and Test Prep

USE DATA For 29–30, use the graph.

29. Which school has the most students? the fewest?

30. Which school has the most male students?

31. 9×8 32. $30 \div 6$

33. Which is the sum $80,444 + 812,045$?

A 792,489   C 892,589

B 892,489   D 902,489

SCHOOL POPULATION

■ males
■ females

Number of Students: 600, 500, 400, 300, 200, 100, 0

School: Parker, Delaney, Polytech

Millions and Billions

▶ **Learn**

MOONWALK An estimated 1 million people crowded Florida roads and beaches to see the launch of *Apollo 11*. You can use a grid to understand the size of 1 million.
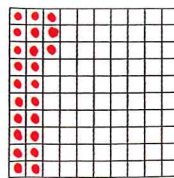
HANDS ON

Activity
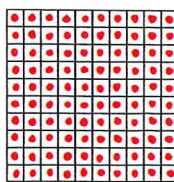
MATERIALS: grid paper, crayons, tape

STEP 1

Use a 10 × 10 sheet of grid paper. Draw a dot in each box on the grid paper. Let each dot represent 1 person. How many people are shown on this grid?
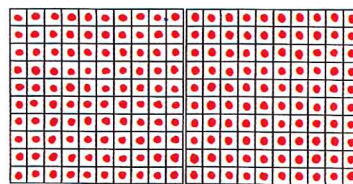
STEP 2

How many people does the grid paper show when it is filled? Write the total at the bottom of the grid paper.

STEP 3

Tape your grid paper to another student's grid paper. Write the total number of people shown by the 2 sheets of grid paper.

▲ The *Apollo 11* mission was the first to land astronauts on the moon. *Apollo 11* blasted off from Earth on July 16, 1969.

• Will you need more than or fewer than 100 sheets to show 1 million people? Explain.

An estimated 726,300,000 people watched Neil Armstrong take the first step on the moon. You can show this number on a place-value chart.

MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
7	2	6,	3	0	0,	0	0	0

Standard Form: 726,300,000

Expanded Form: 700,000,000 + 20,000,000 + 6,000,000 + 300,000

Word Form: seven hundred twenty-six million, three hundred thousand

Billions

The National Aeronautics and Space Administration (NASA) funding for Project Apollo's human spaceflights was $19,407,134,000.

A billion has one more period than a million. One **billion** is 1,000 million.

BILLIONS			MILLIONS			THOUSANDS			ONES		
Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones	Hundreds	Tens	Ones
	1	9,	4	0	7,	1	3	4,	0	0	0

Standard Form: 19,407,134,000

Expanded Form: 10,000,000,000 + 9,000,000,000 + 400,000,000 + 7,000,000 + 100,000 + 30,000 + 4,000

Word Form: nineteen billion, four hundred seven million, one hundred thirty-four thousand

• How do periods help you read a number?

REASONING There are 1,000 millions in 1 billion. How many 10 millions are in 10 billion?

MATH IDEA Place value and periods help you read and write greater numbers.

▶ **Check**

1. **Explain** how the word form and the expanded form for 3,450,632 are alike. How are they different?

▲ Neil Armstrong snapped this picture of Buzz Aldrin as Aldrin stepped onto the moon.

Write each number in standard form.

2. five million, three hundred fourteen

3. two billion, six hundred eleven thousand, one hundred seven

4. thirty-three million, two hundred seven thousand, twelve

5. eighty million, three hundred eight thousand, four

Use the number 4,302,698,051.

6. Write the name of the period that has the digits 698.

7. Write the name of the period that has the digits 302.

8. Write the digit in the ten-millions place.

9. Write the place value of the digit 4.

LESSON CONTINUES ▶

Write each number in standard form.

10. twenty-one million, eleven thousand, two hundred twelve

11. fifty-three billion, two million, one hundred sixteen thousand, seven

Write the value of the blue digit.

12. 35,4**2**7,231

13. **7**80,904,652

14. 413,**9**16,102

15. 19,413,5**7**2

16. 8,102,67**3**,124

17. 14,956,630,210

18. **9**,124,432,212

19. 42**4**,984,127

In which number does the digit 7 have the greater value? Explain.

20. a. 17,854
    b. 105,079

21. a. 7,089,000,000
    b. 7,089,000

22. a. 760
    b. 750,000

For 23–24, copy and complete.

23. The number 2,984,052,681 represents two billion, __?__ hundred eighty-four million, fifty-two thousand, __?__ hundred eighty-one.

24. 🔴**ALGEBRA**
$$5,000,000 + \blacksquare + 10,000 + 6,000 + \blacksquare + 50 + 1 = 5,716,651$$
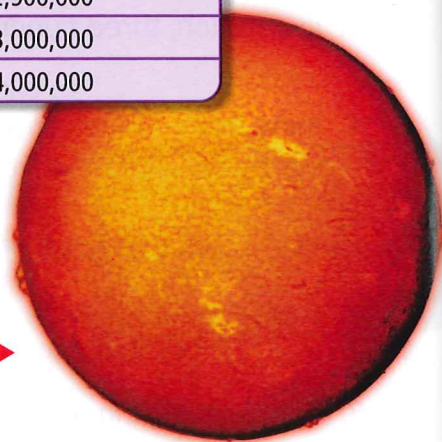
Write each number in two other forms.

25. two million, three hundred six thousand, fifteen

26. $1,000,000,000 + 10,000,000 + 10,000 + 100 + 1$

27. 65,200,108

28. 207,111,006

29. 1,480,200,965

USE DATA For 30–31, use the table.

30. Which planet is about ninety-two million, nine hundred thousand miles from the sun?

31. About how many billion miles is Neptune from the sun?

32. ❓**What's the Error?** Mary wrote the number 5,67,890. Explain her error. Write the number correctly in standard form.

33. **REASONING** If your printer could print a number every second, how many hours would it take for it to print all the numbers from 1 to 1,000,000?

DISTANCE FROM THE SUN	
Planet in the Solar System	Approximate Average Distance From the Sun (in Miles)
Mercury	35,960,000
Earth	92,900,000
Neptune	2,793,000,000
Pluto	3,664,000,000

The sun ▶

34. 📊**FAST FACT • SCIENCE** The distance between Earth and the moon is about 240,250 miles. Write this number in expanded form.

35. **REASONING** Write the least 9-digit number possible without repeating a digit. What is the value of the digit 2?

Mixed Review and Test Prep

Write the value of the blue digit. (p. 2)

36. 73,**2**15

37. 678,**6**21

There are 100 dimes in a roll.

38. How much money is each roll worth?

39. How many rolls of dimes do you need for $1,000,000?

Copy and complete.

40. $6 \times 2 = 4 \times \blacksquare$ **41.** $50 - 34 = 4 \times \blacksquare$

42. Write the factors of 24.

Choose the letter of the next three numbers in the pattern.

43. **TEST PREP**   9, 12, 15, 18
  A 19, 20, 21   **C** 21, 23, 26
  B 21, 24, 27   **D** 23, 25, 27

44. **TEST PREP**   1, 2, 4, 7, 11
  F 16, 22, 29   **H** 16, 24, 31
  G 14, 18, 23   **J** 13, 15, 17

Problem Solving THINKER'S CORNER 💡

WHAT'S THE NUMBER'S SIZE? The students at Forest Lake Elementary School collected pennies for one year to pay for new band uniforms. At the end of the year, they had collected one million pennies.

Is the value of one million pennies greater than or less than $1,000,000?

Since it takes 100 pennies to make one dollar, then 1,000,000 pennies has to be less than $1,000,000.

Use these questions to help you see how 1,000,000 relates to other numbers.

1. Is 1,000,000 greater than or less than 100,000?

2. Does your school library have more than or fewer than 1,000,000 books?

3. Is 1,000,000 books more than or fewer than 850,000 books?

4. Is 1,000,000 closer to 900,000 or closer to 1,500,000?

For 5–7, use the numbers 680,000; 850,000; and 2,450,000.

5. Which two numbers are closest to each other?

6. Name a number that is less than all 3 numbers.

7. Name a number between 680,000 and 850,000.
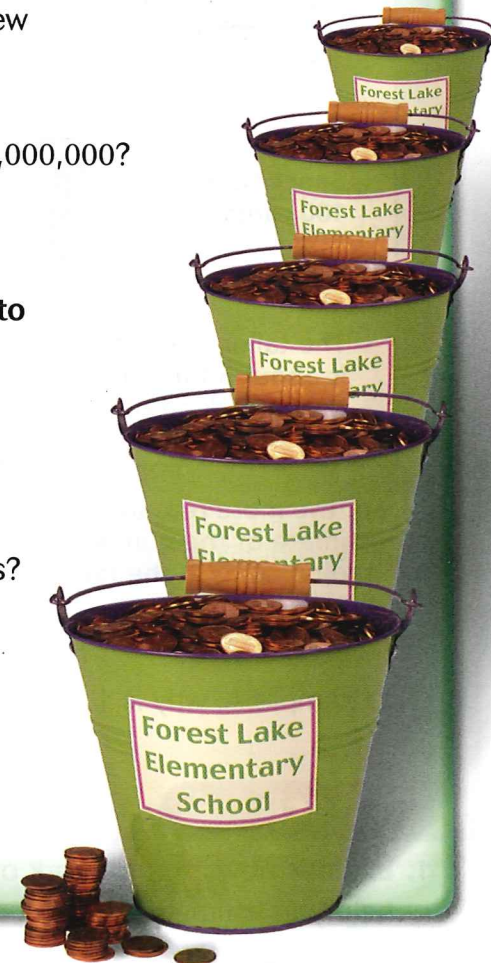
Benchmark Numbers

▶ Learn

TO COUNT OR NOT TO COUNT! A <mark>benchmark</mark> is a familiar number used as a point of reference. You can use a benchmark to determine a reasonable estimate.

Notre Dame Stadium is in South Bend, Indiana. In the top photo each outlined section seats about 1,000 people. About how many people can sit in the 3 outlined sections?

The benchmark is 1,000 people. The larger section is about 3 times as great.

So, about 3,000 people could sit in the in the 3 outlined sections.

Examples

A Which estimate of the number of trading cards is more reasonable, 500 or 1,500?

Benchmark:
100 cards

The taller stack of cards is about 5 times the benchmark amount.
$5 \times 100 = 500$

So, the more reasonable estimate of the number of trading cards in the taller stack is 500.

B What is a reasonable estimate of the number of pieces of macaroni in the full jar?

Benchmark:
500 pieces

The full jar of macaroni holds about 4 times the benchmark amount.
$4 \times 500 = 2,000$

So, a reasonable estimate of the number of pieces of macaroni in the full jar is 2,000.

• In Example A, why is 1,500 not a reasonable estimate?

▲ Notre Dame Stadium

▶ Check

1. Explain how a benchmark of 20 people in one row could help you estimate the number of people in a movie theater.
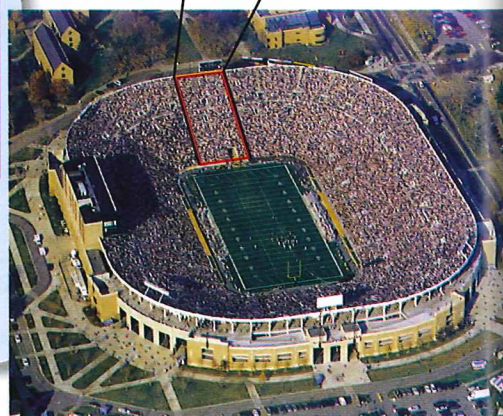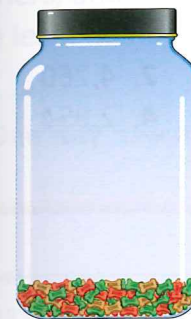
Use the benchmark to find a reasonable estimate.

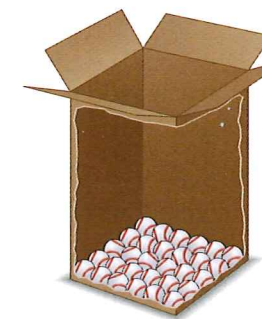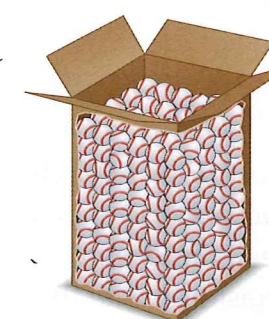**2.** dog food in a full jar

100 pieces   ?

3. baseballs in a full carton
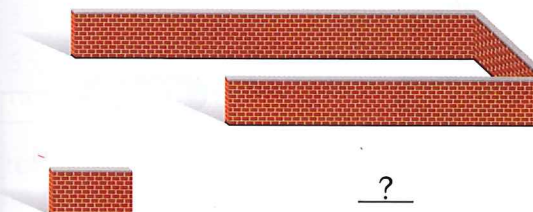
30 baseballs   ?

▶ Practice and Problem Solving   Extra Practice, page 16, Set C

Use the benchmark to find a reasonable estimate.
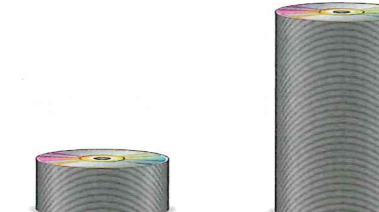
4. bricks in a wall

100 bricks   ?

5. CDs in a stack

50 CDs   ?

6. ESTIMATION In every major league baseball game, about 6 dozen baseballs are used. If 5 games are played in a week, how many baseballs will be used?

7. 📓 **Write About It** Explain how you can use a benchmark of 50 bike riders per grade to estimate the number of bicycles at your school.

Mixed Review and Test Prep

8. Write thirty-eight million, six thousand, nine hundred forty-five in standard form. (p. 4)

9. Write $1,000,000 + 500,000 + 7,000 + 400 + 90 + 8$ in standard form. (p. 4)

10. The number 528,390,467 represents __?__ twenty-eight million, three hundred __?__ thousand, __?__ hundred sixty-seven. (p. 4)

11. $4 \times 5 = \blacksquare + 8$

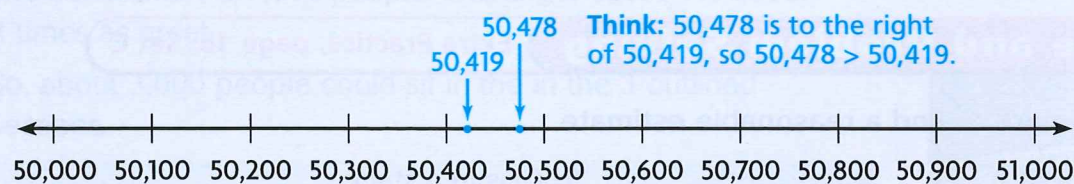**12.** **TEST PREP** Which is the value of the digit 7 in 176,495,283? (p. 4)

A 7,000

B 700,000

C 7,000,000

D 70,000,000

Compare and Order

▶ **Learn**

POPULAR POOCHES The dachshund and the beagle are two popular dog breeds in the United States. In a recent year, there were 50,478 dachshunds and 50,419 beagles registered with the American Kennel Club. Which breed had more dogs registered?

One Way Use a number line to compare 50,478 and 50,419.

50,478   **Think:** 50,478 is to the right
50,419   of 50,419, so 50,478 > 50,419.

50,000 50,100 50,200 50,300 50,400 50,500 50,600 50,700 50,800 50,900 51,000

Another Way Use place value. Start at the left. Compare the digits in each place-value position until the digits are different.

STEP 1	STEP 2	STEP 3	STEP 4
Compare the ten thousands.	Compare the thousands.	Compare the hundreds.	Compare the tens.
50,478	50,478	50,478	50,478
↓ same	↓ same	↓ same	↓ 7 > 1
50,419	50,419	50,419	50,419
			So, 50,478 > 50,419.

Since 50,478 > 50,419, there were more dachshunds registered than beagles.

• How does aligning the digits by place value help you compare numbers?

Examples Compare.

A 84,200,000
         ↓   2 < 9
   84,900,000

So, 84,200,000 < 84,900,000.

B 1,024,850
         ↓   1 > 0
     643,850

There are no millions in 643,850.

So, 1,024,850 > 643,850.

Order Whole Numbers

In that same year, there were 40,005 poodles, 42,025 Yorkshire terriers, and 37,035 boxers registered. Order these breeds from the least number of dogs registered to the greatest.

One Way Use a number line to order numbers.

Think: 37,035 is to the left of 40,005, and 40,005 is to the left of 42,025.
37,035 < 40,005 < 42,025

37,035   40,005   42,025

35,000   40,000   45,000

Another Way Use place value.

STEP 1	STEP 2
Compare the ten thousands.	Compare the other two numbers using thousands.
40,005	40,005
↓	↓ 0 < 2
42,025	42,025
↓	So, 40,005 < 42,025
37,035 3 < 4	So, 37,035 < 40,005 < 42,025
So, 37,035 is the least of the three numbers.	

From the least number of dogs registered to the greatest, the breeds are boxer, poodle, and Yorkshire terrier.

⚠ **MATH IDEA** To compare and order numbers, place the numbers in order on a number line or use place value to compare the digits from left to right.

▶ **Check**

1. **Explain** how you can show that 7,609,000 is greater than 7,600,009.

2. **Describe** two different ways you can order these numbers: 10,435; 9,590; 10,299.

Start at the left. Name the first place-value position where the digits differ. Name the greater number.

3. 8,007; 87,000   4. 205,768; 205,796   5. 35,090; 35,909

Compare. Write <, >, or = for each ●.

6. 180,551 ● 180,451   7. 3,154,270 ● 3,154,830   8. 4,902,677 ● 4,902,830

9. 198,335 ● 198,335   10. 314,308 ● 304,004   11. 996,035 ● 986,350

LESSON CONTINUES ▶

Start at the left. Name the first place-value position where the digits differ. Name the greater number.

12. 6,712; 61,365

13. 680,742; 680,789

14. 351,604; 351,408

Compare. Write <, >, or = for each ●.

15. 48,922 ● 49,800

16. 15,650 ● 5,650

17. 187,418 ● 178,418

18. 451,300 ● 452,030

19. 1,800,250 ● 1,800,250

20. 28,792 ● 28,790

21. 20,767,300 ● 2,767,071

22. 602,717 ● 602,718

23. 7,451,950 ● 7,045,950

24. 509,782,650 ● 509,562,710

25. 1,098,254,701 ● 1,082,276,535

Find the missing digit.

26. 1,988,678 < 1,98■,678

27. 192,717,568 > 19■,717,568

28. 5,323,134 > 5,323,■34

29. 537,691,432 > 537,69■,432
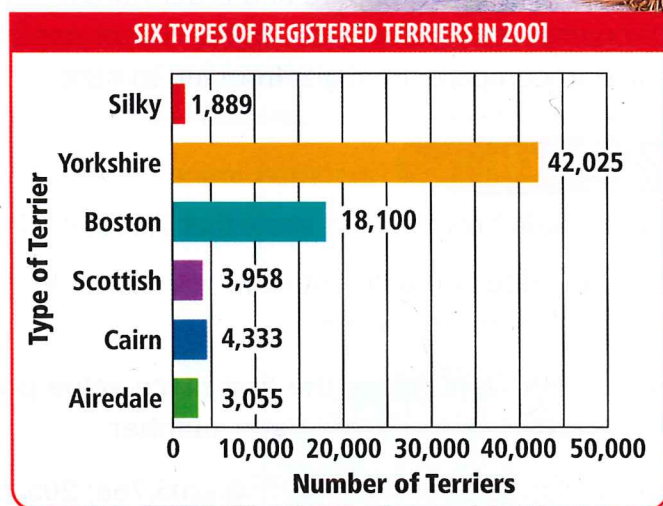
Order from greatest to least.

30. 26,295; 216,925; 219,625

31. 235,289; 236,287; 236,178

32. 78,935; 77,590; 178,286

33. 234,650,200; 234,850,100; 38,950,500

Order from least to greatest.

34. 895,000; 8,595,000; 859,000

35. 4,210,632; 2,410,781; 4,120,681

36. 49,086; 49,680; 48,690

37. 335,219; 336,007; 336,278

USE DATA For 38–40, use the graph.

38. Order from greatest to least the number of terriers registered.

39. How much greater is the number of Yorkshire terriers than the total number of silky, Boston, Scottish, cairn, and Airedale terriers?

40. When comparing the number of Scottish terriers to Airedale terriers, in which place value do the digits differ?

41. 📓 **Write About It** Explain how to compare 1,879,987 and 1,979,987.

42. ❓ **What's the Question?** There are 3 numbers: 345,789; 355,984; and 355,798. The answer is 355,984.

SIX TYPES OF REGISTERED TERRIERS IN 2001

Type of Terrier	Number of Terriers
Silky	1,889
Yorkshire	42,025
Boston	18,100
Scottish	3,958
Cairn	4,333
Airedale	3,055

0 10,000 20,000 30,000 40,000 50,000
Number of Terriers

REASONING Kim, Juan, and Karen went to the annual dog show. Kim drove 455 miles to get there. Juan drove 110 miles farther than Kim. Karen drove 150 miles less than Juan. Use this information for 43–44.

43. How far did each person drive to the dog show?

44. Who drove the least distance? Who drove the greatest distance?

Mixed Review and Test Prep

45. $36 \div 3$

46. 9×6

47. Write 3,000,000,000 + 60,000,000 + 8,000,000 + 20,000 + 6,000 + 9 in standard form. **(p. 4)**

48. $9,011 - 1,235$

49. **TEST PREP** How many dimes are in $55?

  A 55   **C** 550

  B 500   **D** 5,050

50. 9×3

51. 8×4

Write the number that is 1,000 more.

52. 4,099

53. 56,230

54. **TEST PREP** Which number is one million, seventeen thousand, four hundred sixty-five written in standard form? **(p. 4)**

  F 1,170,465   **H** 1,017,465

  G 1,017,645   **J** 1,017,346

Problem Solving THINKER'S CORNER 💡

VISUAL THINKING Rachel is using base-ten blocks to help her compare 1,380 and 1,365. She uses cubes to represent thousands, squares to represent hundreds, rods to represent tens, and units to represent ones.

1. Look at the photo. Which number is represented by the base-ten blocks, 1,380 or 1,365?

2. Use base-ten blocks to show 1,380 and 1,365.

3. Draw your models.

4. Explain how you can use the blocks or drawings to help you decide which number is greater.

Use base-ten blocks to model. Draw your models. Write <, >, or = for each ●.

5. 432 ● 408

6. 1,521 ● 1,512

7. 1,055 ● 1,505

8. 290 ● 209
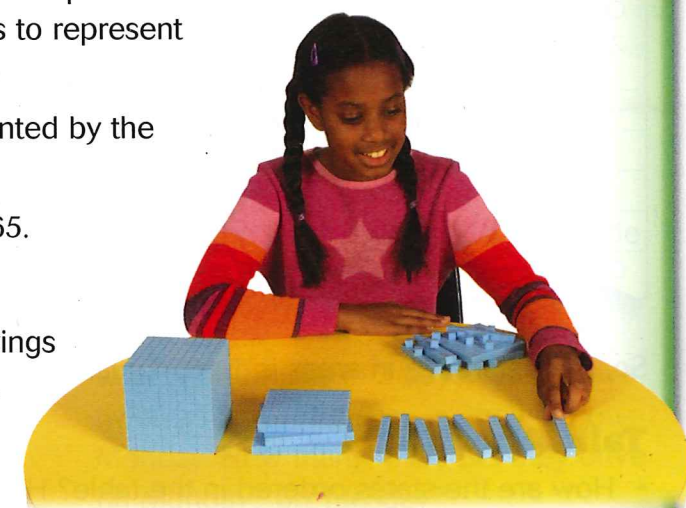
Problem Solving Skill
Use a Table

UNDERSTAND ▸ PLAN ▸ SOLVE ▸ CHECK

SIZE IT UP Rhode Island is the smallest state in the United States. Delaware is the second smallest state. What is the difference between the areas of Delaware and Rhode Island?

AREA AND POPULATION OF STATES		
Name	Area (sq mi)	Population
Delaware	2,396	783,600
Florida	65,755	15,982,378
Indiana	36,418	6,080,485
Michigan	58,527	9,938,444
New Jersey	8,215	8,414,350
Rhode Island	1,231	1,048,319

Rhode Island

Delaware

Find the areas of Delaware and Rhode Island. Then subtract to find the difference.

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Area of Delaware          2,396  square miles
Area of Rhode Island     –1,231  square miles
                          1,165  square miles
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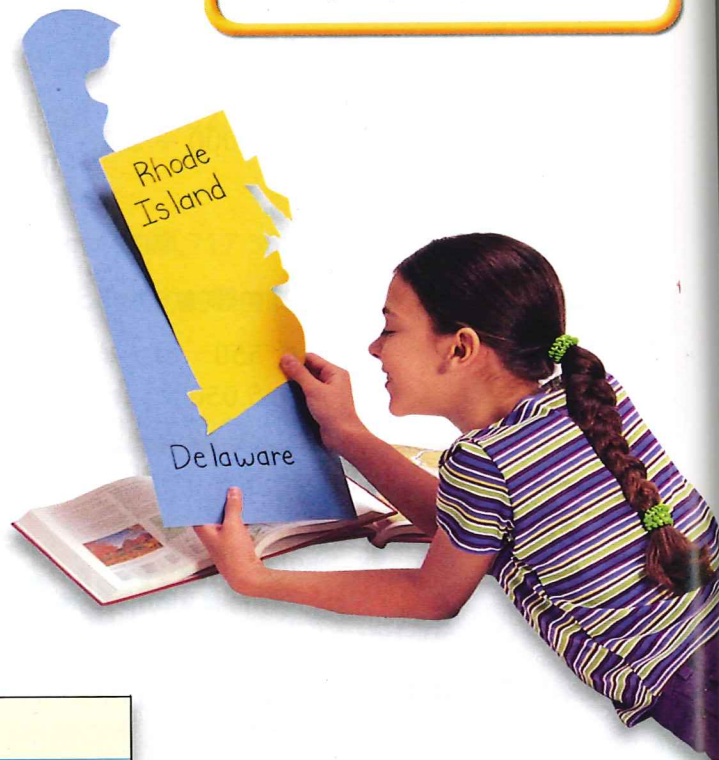So, the difference in areas is 1,165 square miles.

Talk About It

• How are the states ordered in the table? How would you change the table to show the state populations in order from greatest to least?

• Explain how reading the data from a table helps you solve problems.

Problem Solving Practice

USE DATA For 1–4, use the table.

CAPITAL CITIES	
City and State	Population
Baton Rouge, LA	227,818
Indianapolis, IN	791,926
Nashville, TN	569,891
Oklahoma City, OK	506,132
Richmond, VA	197,790

1. Which city has the greatest population? the least?

2. How much greater is the population of Nashville than the population of Oklahoma City?

3. **ALGEBRA** Which equation shows the combined populations of Nashville and Richmond if n represents the total population?

   A $569,891 + 197,790 = n$
   B $n + 197,790 = 569,891$
   C $n = 197,790 - 569,891$
   D $569,891 + n = 197,790$

4. Which states' capital cities have populations of 1 million when rounded to the nearest million?

   F VA, IN, OK   **H** IN, TN, OK
   G IN, TN, VA   **J** LA, TN, OK

Mixed Applications

5. The clock shows the time Mike's 1-hour flight landed in Richmond. It took him 30 minutes to drive to the airport, and he was 45 minutes early for his flight. At what time did he leave his house?

6. Sasha's family is planning a trip. They can go to either Orlando or New York. They can drive, fly, or take the train to their destination. Make a list of their choices.

7. Bill said, "The greater the state's area, the greater the population." How can you use the table on page 14 to decide whether Bill's statement is correct?

8. **ALGEBRA** The Smiths drove a total of 540 miles in 2 days. They drove twice as far on Tuesday as they did on Monday. How many miles did they drive on Monday? on Tuesday?

9. **Write a problem** using the "Capital Cities" table above. Then solve the problem.

Extra Practice

Set A (pp. 2–3)

Write the value of the blue digit.

1. 14,350
2. 54,079
3. 635,017
4. 3,980

Write each number in expanded form and in word form.

5. 34
6. 6,080
7. 123,689
8. 991

Write each number in word form.

9. 642,007
10. 2,311
11. 1,078
12. 601

Set B (pp. 4–7)

Write each number in standard form.

1. 3,000,000 + 40,000 + 9,000 + 200 + 7
2. 50,000,000 + 1,000,000 + 400,000 + 10,000 + 300 + 20 + 5
3. forty-three million, three hundred ten thousand, five hundred seven
4. six billion, five hundred six million, thirteen thousand, four hundred twenty

Write the value of the blue digit.

5. 9,450,180
6. 47,329,052
7. 8,506,332,189

Set C (pp. 8–9)

Use the benchmark to find a reasonable estimate.

1. nails in a bucket

50 nails   ?

2. buttons in a box

200 buttons   ?

Set D (pp. 10–13)

Compare. Write <, >, or = for each ●.

1. 18,276 ● 18,287
2. 845,418 ● 845,418
3. 50,967,300 ● 5,967,021

Order from greatest to least.

4. 12,945; 12,693; 12,990
5. 10,235,561; 1,235,561; 10,253,561

Order from least to greatest.

6. 436,042,303; 463,054,119; 64,332,989
7. 1,525,202; 1,252,202; 1,522,202

Review/Test

✓ CHECK VOCABULARY AND CONCEPTS

Choose the best term from the box.

1. A thousand thousands is equal to one ? . (p. 4)
2. A familiar number used as a point of reference is called a ? . (p. 8)

million
billion
benchmark
period

✓ CHECK SKILLS

Write the value of the blue digit. (pp. 2–7)

3. 162,408
4. 27,140,652

Write each number in two other forms. (pp. 2–7)

5. 2,030,909
6. three billion, two hundred three million, forty-two thousand, five

Use the benchmark to find a reasonable estimate. (pp. 8–9)

7. peanuts in a jar

100 peanuts   ?

Compare. Write <, >, or = for each ●. (pp. 10–13)

8. 104,690 ● 140,690
9. 3,250 ● 13,250
10. 9,782,650 ● 9,782,650

Order from least to greatest. (pp. 10–13)

11. 9,519; 10,003; 9,195
12. 1,502,369; 1,501,369; 1,507,369

✓ CHECK PROBLEM SOLVING

USE DATA For 13–14, use the table. (pp. 14–15)

13. Order the lakes from the least area to the greatest area.

14. List the lakes in order from the greatest maximum depth to the least maximum depth.

15. In the future, a spaceship might be built that could travel 100,000 miles a second. How long would it take to travel 1 million miles? 10 million miles? (pp. 4–7)

AREAS OF THE GREAT LAKES		
Lake	Area (sq mi)	Maximum Depth (ft)
Michigan	22,300	923
Erie	9,910	210
Ontario	7,550	802
Superior	31,700	1,330
Huron	23,000	750

⭐Standardized Test Prep

⭐ NUMBER SENSE, CONCEPTS, AND OPERATIONS

1. This table shows languages other than English that are spoken in the United States. Which language is spoken by the **greatest** number of people?

SOME LANGUAGES IN THE U.S.	
Language	**Number of Speakers**
French	1,702,000
Greek	388,000
Chinese	1,249,000
Spanish	17,339,000

A French

B Greek

C Chinese

D Spanish

2. Randi read about the heights of mountains in the United States. Mt. Bear is 14,831 feet tall; Mt. Elbert is 14,433 feet; Mt. Ranier is 14,410 feet, and Mt. Whitney is 14,494 feet. Which shows the heights in order from **greatest** to **least**?

F 14,831; 14,494; 14,433; 14,410

G 14,494; 14,433; 14,831; 14,410

H 14,410; 14,433; 14,494; 14,831

J 14,831; 14,410; 14,433; 14,494

3. Explain It A bookstore sold 249 books on Friday and 475 books on Saturday. ESTIMATE the number of books sold during the two days. Explain your estimate.

⭐ MEASUREMENT

4. Which weighs about 3 kilograms?

A a balloon

B a watermelon

C a pencil

D a refrigerator

TIP **Decide on a plan.** See item 5. Using the strategy *draw a diagram* may help you find the perimeter of the park. Draw a square and label the sides 115 m.

5. Timothy jogs around the park every morning. The park is a square with sides 115 meters long. What is the perimeter of the park?

F 460 meters

G 450 meters

H 345 meters

J 330 meters

6. Which of these units is the most reasonable unit to use when measuring the distance between Atlanta and Miami?

A inch

B foot

C yard

D mile

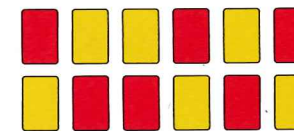**7. Explain It** A juice bottle holds 4 pints. Is this enough to serve one cup each to 4 people? Explain how you know.

⭐ DATA ANALYSIS AND PROBABILITY

8. Lara tossed a coin and drew this bar graph of the results. How many times did the coin land on tails?

RECORD OF COIN TOSSES

Coin — Heads, Tails

Number of Tosses: 0 10 20 30 40
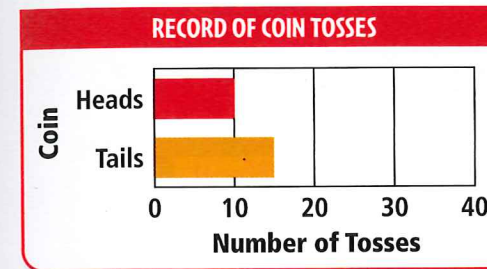
F 5

G 10

H 15

J 25

9. Suppose you have the following cards in a bag.

Which statement below is true?

A The probability of drawing a red card is less than the probability of drawing a yellow card.

B The probability of drawing a red card or a yellow card is the same.

C The probability of drawing a red card is greater than the probability of drawing a yellow card.

D The probability of drawing a red card or a yellow card is 0.

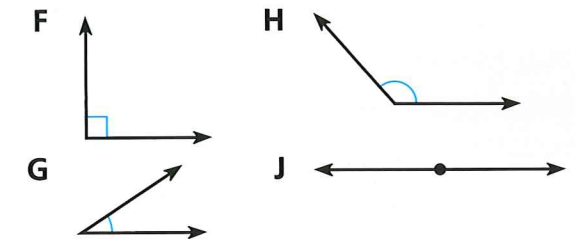**10. Explain It** Carlos can choose from these pizza crusts and toppings.

Crusts: thin, thick
Toppings: pepperoni, sausage, ham, mushroom, peppers, onion
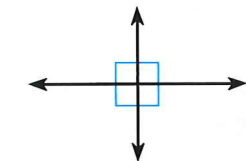
How many different choices of crust and one topping does he have? Explain how you found your answer.

⭐ GEOMETRY AND SPATIAL SENSE
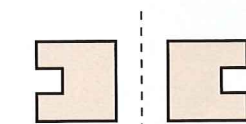
11. Which of the following is an obtuse angle?

12. Which **best** describes the lines in the figure?

A intersecting and parallel

B parallel and perpendicular

C intersecting and perpendicular

D intersecting and NOT perpendicular

13. Which word **best** describes how the figure was moved?

F translation   **H** reflection

G rotation   **J** tessellation

14. Explain It Name the ordered pair that shows the location of the pool. Explain how you know.

● = school
■ = park
★ = pool
▲ = lake