SECTION 1

Numbers and Operations

Name _____ Date _____

(1.1) Whole Number Place Value Through 100,000

1. What is the value of each digit in the number 8,647?

   A. 4: _____   B. 8: _____

   C. 7: _____   D. 6: _____

2. Given the number 63,072, find the digit that represents each value.

   A. tens: _____   B. thousands: _____   C. hundreds: _____

   D. ones: _____   E. ten thousands: _____

3. Combine the following values to write the number in standard form.

   eight hundreds

   two thousands

   three hundred thousands

   five ones

   nine tens

   four ten thousands

MATH TIP

Any standard number may be written in expanded form. For example, the standard number 257,372 can be written as 200,000 + 50,000 + 7,000 + 300 + 70 + 2 in expanded form.

1.2 Whole Number Place Value Through 100 Millions

1. What is the value of each digit in the number 72,630,815?

A. 3: _____   B. 1: _____

C. 2: _____   D. 6: _____

E. 8: _____   F. 7: _____

G. 5: _____   H. 0: _____

2. Write the following numbers in standard form.

A. fifty-three million, one hundred seventy-two thousand, sixty-eight

B. six million, three hundred fifty-four
thousand, eight hundred ninety-seven

3. Write the following numbers in word form.

A. 38,251,740

B. 600,294,005

BONUS

Identify the largest number below.

A. seven hundred three million, four hundred thousand, nine hundred eighty-two

B. 700,000,000 + 30,000,000 + 600,000 + 30,000 + 4,000 + 20 + 5

C. 700,358,426

MATH TIP

Without understanding place value, a person cannot truly understand the values of numbers.

(1.3) Multiplication Facts

1. Complete each of the following series by skip counting.

A. 2, 4, _____, 8, _____, _____, 14, _____, 18, 20, _____, 24

B. 3, 6, 9, _____, 15, _____, 21, _____, 27, _____, _____, 36

C. 4, 8, _____, 16, _____, 24, 28, _____, _____, 40, _____, 48

2. Complete each of the following series by skip counting.

A. 5, 10, _____, 20, 25, _____, 35, _____, _____, 50, _____, 60

B. 6, 12, _____, 24, _____, 36, _____, _____, 54, _____, 66, 72

C. 7, _____, 21, 28, _____, 42, _____, 56, 63, _____, _____, 84

3. Complete each of the following series by skip counting.

A. 8, _____, 24, _____, 40, 48, 56, _____, 72, _____, 88, _____

B. 9, 18, _____, _____, 45, 54, _____, _____, 81, 90, _____, 108

C. 10, _____, 30, 40, 50, _____, 70, _____, 90, _____, _____, 120

BONUS

Suppose you have five rows of pennies. Four pennies are in each row. How many pennies do you have in all? Write a multiplication problem that shows your answer.

MATH TIP

Learning to skip count will help you to remember multiplication facts.

(1.4) Multiplication by One-Digit Numbers

1. Multiply the following numbers.

A. 225
$\times$ 2

B. 4,635
$\times$ 6

C. 5,029
$\times$ 8

2. Multiply the following numbers.

A. 398
$\times$ 5

B. 7,246
$\times$ 3

C. 5,006
$\times$ 9

3. Last summer, Lisa and her family went on vacation. They drove from their home to Florida. They drove four days, about 540 miles each day. About how many miles did they drive altogether?

BONUS

The tens and thousands digits are missing in the multiplication problem below. Find the missing digits.

___, 6 ___ 5 × 7 = 18,235

MATH TRIVIA

The number 2, when added to or multiplied by itself, results in the same answer: 4. It is the only number greater than 0 for which this is true.

Name _____ Date _____

(1.5) Multiplication by Two-Digit Numbers

1. Multiply the following numbers.

A.   27
    $\times$ 23

B.   15
    $\times$ 94

C.   82
    $\times$ 26

2. Multiply the following numbers.

A. 73×19

B. 65×45

C. 87×68

3. Mrs. Casey, a sixth grade math teacher, ordered one package of pencils for each of her 92 students. Each package contained a dozen pencils. How many pencils did Mrs. Casey order?

BONUS

The sum of two two-digit numbers is 35. Their product is 250. What are the numbers?

Name _____ Date _____

(1.6) Multiplication of Multidigit Numbers, I

1. Multiply the following numbers.

A. 368
  $\times\ 24$

B. 615
  $\times\ 47$

C. 807
  $\times\ 90$

2. Multiply the following numbers.

A. 565×29

B. 307×63

C. 869×56

3. Imagine that a friend is having trouble multiplying 742×53. Write instructions that will help your friend multiply these numbers correctly.

BONUS

Of the 426 students in Kayla's school, on average 358 buy the school lunch each day. Using this average and assuming that there are 20 school days in a month, how many lunches should the school order for one month? Is this an accurate number? Explain your answer.

MATH TIP

In a multiplication problem, the numbers that are multiplied are called *factors*. The answer is called the *product*.

(1.7) Multiplication of Multidigit Numbers, II

1. Multiply the following numbers.

A. 5,758
$\times\ 62$

B. 9,207
$\times\ 50$

C. 11,806
$\times\ 86$

2. Multiply the following numbers.

A. 4,268
$\times\ 407$

B. 6,009
$\times\ 538$

C. 10,596
$\times\ 3,547$

3. The average adult human heart beats about 70 times per minute. About how many times does it beat each day?

BONUS

Is the following equation true? 389 × 402 = 402 × 389. Explain your answer.

MATH TRIVIA

If the number 111,111,111 is multiplied by itself, the product is 12,345,678,987,654,321. This is all of the nonzero digits in ascending to descending order.

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(1.8) Estimation of Products

1. Estimate the product for each of the following expressions.

A. 389 × 8   B. 21 × 579   C. 57 × 5003

2. Estimate the product for each of the following expressions.

A. 300 × 200   B. 6,000 × 800

C. 9,000 × 7,000

3. Danny is having trouble estimating products. Write the steps showing Danny how he can estimate 1,011 × 98.

BONUS

Erin and Anthony are the co-chairpersons of the committee for the student council dance. They expect about 225 students to attend the dance. The actual number of students attending may be a few more or a few less. The dance committee must buy refreshments in advance. The committee does not want to buy more refreshments than necessary. Anthony says to buy refreshments for 220 students. Erin says to buy refreshments for 230 students. Whose estimate is more accurate? What would your estimate be? Why?

MATH TIP

Use multiples of ten to estimate products.

(1.9) Division Facts

1. In each set, circle the division facts that are correct.

A. $56 \div 8 = 7$ $42 \div 6 = 7$ $29 \div 9 = 3$ $42 \div 5 = 8$

B. $84 \div 9 = 9$ $49 \div 8 = 6$ $24 \div 6 = 4$ $36 \div 4 = 9$

C. $90 \div 10 = 9$ $33 \div 5 = 6$ $22 \div 3 = 8$ $64 \div 8 = 8$

2. Circle the problem in each set that shows a basic division fact.

A. $10 \div 4$ $21 \div 6$ $9 \div 3$ $12 \div 5$

B. $18 \div 7$ $30 \div 5$ $25 \div 4$ $15 \div 2$

C. $17 \div 3$ $28 \div 7$ $22 \div 9$ $26 \div 8$

3. Circle the problems in each set that show basic division facts. Then write a related multiplication fact.

A. $54 \div 9$ $24 \div 7$ $12 \div 3$ $31 \div 8$

B. $45 \div 5$ $39 \div 5$ $21 \div 7$ $20 \div 3$

C. $51 \div 9$ $32 \div 4$ $82 \div 10$ $72 \div 8$

BONUS

Does $24 \div 4 = 4 \div 24$? Explain your answer.

MATH TRIVIA

The number 1 is the only number that, when multiplied or divided by itself, results in itself.

Name _____ Date _____

(1.10) Divisibility Rules for 2, 5, and 10

Use the numbers below to answer the questions that follow.

1,466	439	78	2,555
520	4,211	3,064	285
1,370	205	493	7,245

1. Which of the numbers are divisible by 2?

2. Which of the numbers are divisible by 5?

BONUS

Which of the numbers are divisible by 2, 5, and 10? Explain your answer.

3. Which of the numbers are divisible by 10?

MATH TIP

You can tell that a number is divisible by 2, 5, or 10 by looking at the last digit. If the last digit is even, the number is divisible by 2. If the last digit is 0 or 5, the number is divisible by 5. If the last digit is 0, the number is divisible by 10.

1.11 Divisibility Rules for 4 and 8

1. Michelle read that you can tell if a number is divisible by 4 just by looking at the last two digits of the number. If the number formed by the last two digits can be divided by 4, the number is divisible by 4. Which of the following numbers are divisible by 4?

A. 724   B. 2,032   C. 3,126

2. Michelle also found that a number is divisible by 8 if the number formed by the last three digits is divisible by 8. Which of the following numbers are divisible by 8?

A. 5,432   B. 2,102   C. 3,144

3. Fill in the missing digit in the following numbers so that each number is divisible by 4. There may be more than one answer.

A. 6 ____ 2

B. 2,9 ____ 6

C. 75,93 ____

BONUS

Sal believes that if a number is divisible by 4, it is also divisible by 8. Do you agree or disagree? Explain your answer.

MATH TIP

Knowing the times tables makes it easy to apply the divisibility rules.

Name _____ Date _____

Use the numbers below to answer Questions 1 and 2.

| 335 | 223 | 312 | 2,718 |
| 1,234 | 21,795 | 31,239 | 6,111 |

1. Which of the numbers are divisible by 3?

2. Which of the numbers are divisible by 9?

3. Fill in the missing digit in the following numbers so that each number is divisible by both 3 and 6. There may be more than one answer.

A. 34 ____

B. 2,28 ____

C. 9,87 ____

Bonus

Fill in the blanks in the following sentences with 3, 6, or 9 to make true statements.

A. If a number is divisible by _____, then it is divisible by _____.

B. If a number is even and divisible by _____, then it is divisible by _____.

C. An odd number is never divisible by _____.

MATH TIP

Add the digits of a number to find if the number is divisible by 3 and 9. If the sum is divisible by 3, then the number is divisible by 3. If the sum is divisible by 9, then the number is divisible by 9. If a number is divisible by 2 and 3, then the number is also divisible by 6.

(1.13) Multiples and Least Common Multiples

1. List the first ten multiples of 3 and the first ten multiples of 4.

2. What are the common multiples of 3 and 4? What is the least common multiple of 3 and 4?

3. Which of the following statements are true? Correct the false statements.

A. 29 is a multiple of 7.

B. 45 is a multiple of 9.

C. There are no multiples of 7 and 9.

D. 24 is the least common multiple of 4 and 6.

E. 100 is the least common multiple of 5 and 20.

BONUS

Which of the following is not a multiple of 6? Explain why.

6, 12, 18, 36, 72, 142, 180, 224

MATH TRIVIA

The number 4 is the only number in the English language in which the number of letters in the word equals the value of the number.

Name _____ Date _____

1.14 Factors and Greatest Common Factors

1. List the factors of each of the following numbers.

A. 4   B. 15   C. 12   D. 36

2. List the common factors of each of the following groups of numbers.

A. 6 and 9

B. 8 and 24

C. 4, 12, and 18

D. 15, 24, and 36

3. Which of the following statements are true? Correct the false statements.

A. 6 is a factor of 14.

B. 0 is the least common factor of 2 and 3.

C. 14 is a factor of 28.

D. The greatest common factor of 27 and 36 is 9.

E. 1 is a factor of every number greater than 0.

Bonus

Explain the difference between *common factors* and *greatest common factor.*

MATH TIP

A number that divides into another without any remainders is a factor (or divisor) of that number.

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(1.15) Prime and Composite Numbers

1. Identify each of the following numbers as prime (P) or composite (C).

A. 5 _____   B. 6 _____   C. 8 _____

D. 11 _____   E. 13 _____   F. 18 _____

2. Identify the prime and composite numbers from 20 to 30.

3. Explain why the number 100 is composite but the number 101 is prime.

Bonus

Every odd number greater than 1 is either prime or composite. (The number 1 is neither prime nor composite.) But only one even number is prime. What number is this? Explain why it is the only even prime number.

MATH TIP

Every number that has only two factors, 1 and itself, is a prime number.

(1.16) Prime Factorization

1. Find the prime factorization of each of the following numbers.

A. 9 _____   B. 28 _____

C. 30 _____   D. 75 _____

2. Use exponents to rewrite the following prime factorizations.

A. $3 \times 2 \times 3$ _____   B. $2 \times 5 \times 5 \times 2$ _____

C. $3 \times 3 \times 3 \times 5$ _____   D. $5 \times 2 \times 7 \times 5 \times 5$ _____

3. Find the prime factorization of each of the following numbers. Use exponents whenever possible.

A. 27 _____

B. 56 _____

C. 99 _____

D. 624 _____

BONUS

Sal wrote the prime factorization of 36 as $2 \times 2 \times 3 \times 3$. Teresa wrote the prime factorization as 6^2. Who is correct? Explain your answer.

MATH TIP

Be sure that all of the factors in prime factorization are prime numbers.

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Name _____ Date _____

(1.17) Division by One-Digit Divisors

1. Divide the following numbers.

A. $7\overline{)434}$ 　　　　　　　B. $5\overline{)3,840}$ 　　　　　　　C. $8\overline{)5,424}$

2. Divide the following numbers.

A. $7,206 \div 4$ 　　　　　　　B. $9,463 \div 6$ 　　　　　　　C. $2,750 \div 9$

BONUS

Beth divided 1,216 by 4. Her answer was 34. Was her answer correct? If not, explain what her mistake was.

3. James's father is a truck driver whose route goes through several states. In five days last week he drove 1,665 miles. Assuming he drove about the same distance each day, how many miles did he drive each day?

MATH TIP

In division problems, the number that is being divided is called the *dividend*. The nu　mber that divides the dividend is called the *divisor.* The answer to the problem is the *quotient*.

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(1.18) Division by Two-Digit Divisors, I

1. Divide the following numbers.

A. $50\overline{)250}$ 　　　　　　　　B. $70\overline{)463}$ 　　　　　　　　C. $90\overline{)305}$

2. Divide the following numbers.

A. $784 \div 62$ 　　　　　　　　B. $987 \div 35$ 　　　　　　　　C. $163 \div 74$

BONUS

Rachel divided 84 into a number. Her answer was 10 r45. What was the number she divided?

3. Sara found an old box of photographs in the attic. The box contained 216 pictures. She wants to put the pictures in an album. If she puts 12 pictures on each page, how many pages will she need?

MATH TRIVIA

Swiss mathematician Johann Rahn (1624–1656) was the first person to use the ÷ sign. It was included in a book that was published in 1659.

(1.19) Division by Two-Digit Divisors, II

1. Divide the following numbers.

    A. $60\overline{)4,792}$ B. $47\overline{)3,904}$ C. $80\overline{)6,093}$

2. Divide the following numbers.

    A. $7,064 \div 38$ B. $6,329 \div 94$ C. $8,007 \div 42$

3. During his summer vacation, Ali and his family will drive 1,058 miles to visit his grandmother. Most of the driving will be on an interstate highway, and they plan on traveling for two days. If they average 65 miles per hour, about how many hours will they drive?

BONUS

The dividend of this division problem is 4,834. The remainder is 74. The divisor is a two-digit number with an 8 in the tens place. What number occupies the ones place in the divisor? What is the quotient?

MATH TIP

To check an answer to a division problem, multiply the quotient by the divisor and add any remainder. This will give you the dividend.

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(1.20) Division by Two-Digit Divisors, III

1. Divide the following numbers.

A. $49\overline{)5,403}$ 　　　　　 B. $78\overline{)16,376}$ 　　　　　 C. $55\overline{)47,001}$

2. Divide the following numbers.

A. $53,265 \div 67$ 　　　　　 B. $61,942 \div 37$ 　　　　　 C. $875,642 \div 26$

3. The average person breathes about 28,800 times each day. About how many breaths does the average person take per hour? Per minute?

BONUS

Mount Everest, the highest mountain in the world, is 29,078 feet high. A mile equals 5,280 feet. About how many miles high is Mt. Everest?

MATH TRIVIA

The word *division* is taken from the Latin words *dis,* which means "apart," and *ferre,* which means "to carry away." When you divide, you are taking or "carrying" away a part of the number you are dividing.

1.21 **Estimation of Quotients**

1. Estimate the quotient for each of the following problems.

A. $50\overline{)3{,}500}$ B. $64\overline{)2{,}380}$ C. $42\overline{)7{,}906}$

2. Estimate the quotient for each of the following problems.

A. $584 \div 18$ B. $6{,}217 \div 74$ C. $1{,}749 \div 86$

3. Explain the steps you would take to estimate $42{,}796 \div 194$.

BONUS

According to Rebecca, the estimated quotient for 2,464 ÷ 53 is 50. Jason thinks that 40 is a better estimate. Whose estimate is more accurate? Why? How do you think they got different estimates?

MATH TIP

An accurate estimate of the answer to a math problem is close, or about equal, to the actual answer. The mathematical symbol for "about equal to" is ≈.

(1.22) Interpretation of Remainders

1. The fourth and fifth grade students of Miguel's school are going to a museum for a class trip. There are 234 students going on the trip. One chaperone is needed for every 12 students. How many chaperones are needed?

2. A new ice-skating rink opened in town. A total of 268 students signed up for skating lessons. Lessons will be given in classes of 15 students each. How many classes need to be formed?

3. Explain whether you agree or disagree with the following statement:

You must consider the situation when you interpret the remainder of a division problem.

BONUS

A theater has rows of seats with 25 seats in each row. The fifth grade in Matt's school is attending a play. There are five classes, each with 22 students. Assuming that the students completely fill as many rows as possible, how many rows will the students occupy? How many partial rows will they occupy? How many seats will be empty in the final row?

MATH TIP

A remainder can never be equal to or larger than the divisor in a division problem.

1.23 The Mean

1. Find the mean of each of the following sets of data.

A. 46, 43, 47, 42, 48, 38

B. 184, 181, 186, 187, 192

C. 1,208, 1,350, 1,467, 1,103

2. Given the mean, find the missing number in each of the following sets of data.

A. Mean = 24   Data: 18, 26, _____, 25

B. Mean = 112   Data: 104, 120, _____, 115, 105

3. Kim found the mean of 90, 90, 90, and 90 by adding 90 four times and dividing by 4. Maria looked at these same numbers and announced the correct mean without performing any calculations. Explain how she was able to do this. What is the mean of these numbers?

BONUS

Tom had the following scores on math tests: 91, 95, 87, and 83. He has one more test this marking period. What is the lowest grade he can receive if he hopes to raise his average to 90?

MATH TIP

Another word for *mean* is *average*.

(1.24) Multiplication and Division with Money

1. Gabriella bought five novels at the bookstore for a total of $34.75. Each novel cost the same amount. Find the cost of each novel.

2. On three days after school, Marissa watched Mrs. Johnson's son Peter so that Mrs. Johnson could do errands. Marissa watched Peter for two hours each day and was paid $3.25 for each hour. How much did Mrs. Johnson pay Marissa altogether?

3. Tyler works in his grandfather's candy shop on Saturday and after school a few days each week. On Saturday Tyler earned $29.00, on Tuesday he earned $21.75, and on Thursday he earned $14.50. He worked a total of 9 hours. How much did Tyler earn per hour?

BONUS

Marco wanted to buy five posters about nature. One poster cost $6.95. Two posters cost $3.79 each. Another poster cost $9.69, and the last poster cost $9.95. Marco had two twenty-dollar bills and estimated that he had enough money to pay for the posters. Did he? Explain your answer.

MATH TIP

Always make sure your answers are reasonable and make sense.

(1.25) Reading and Writing Decimals

1. Write each of the following numbers in word form as a decimal.

A. four and twenty-five hundredths

B. nineteen and six tenths

C. one hundred forty-two and thirty-nine thousandths

D. ten and eight hundredths

2. Write each of the following decimals in word form.

A. 7.1   B. 0.02

C. 93.47   D. 101.068

3. Write the following decimals in expanded form.

A. 2.85

B. 23.675

C. eighteen and four tenths

D. two hundred ninety-two and seventy-five thousandths

BONUS

Is 14.5 equal to 14.50? Explain your answer.

MATH TRIVIA

In 1614, Scottish mathematician John Napier (1550–1617) was the first person to use a decimal point.

Name _____ Date _____

(1.26) Decimal Place Value Through Hundred-Thousandths

1. What is the value of each of the following digits in the decimal 2.15076?

A. 7 _____

B. 1 _____

C. 6 _____

D. 0 _____

2. Find the digit that represents each value in the number 4,632.07958.

A. thousandths _____   B. hundred-
                                  thousandths _____

C. tens _____   D. hundredths _____

E. ten-thousandths _____   F. hundreds _____

3. Combine the following values to write the number in standard form.

three tenths   five ten-thousandths

four ones   two hundredths

six tens   nine hundred-thousandths

one hundred   six thousandths

BONUS

Write the number described by the following clues: The thousandths digit is 4. The ones digit is twice the thousandths digit, and the tenths digit is one more than the hundredths digit. The hundredths digit is one more than the thousandths digit. The ten-thousandths digit is half the tenths digit, and the hundred-thousandths digit is the only even prime number.

MATH TIP

All numbers to the right of a decimal point are a part of a whole.

(1.27) Decimal Place Value Through Millionths

1. What is the value of each digit in the decimal 72.845631?

A. 5 _____   B. 3 _____

C. 2 _____   D. 4 _____

E. 6 _____   F. 1 _____

G. 7 _____   H. 8 _____

2. Write the following decimals in standard form.

A. eight and thirty-seven thousand forty-five hundred-thousandths

B. three hundred five and six hundred forty-seven thousand nine hundred twelve millionths

BONUS

How many digits are required to write a number with a digit in the millions place and a digit in the millionths place?

3. Write the following decimals in word form.

A. 17.4683

B. 310.264587

MATH TRIVIA

Some historians believe that the Incas, a Native American people of Peru, developed a decimal system hundreds of years before the Europeans.

(1.28) Equivalent Decimals

1. Write an equivalent decimal for each of the following numbers.

A. 1.2 _____

B. 7.040 _____

C. 0.405 _____

D. 1 _____

2. Identify the equivalent decimals in each of the following sets of decimals.

A. 0.12   0.012   1.102   0.120

B. 5.001   5.0010   5.100   5.0100

C. 0.079   0.790   0.79   0.0079

D. 10.010   1.0010   10.01   10.0101

3. Explain why 3.090 is equivalent to 3.09.

BONUS

Which of the following numbers are equivalent decimals?

A. seventeen and forty-five hundred-thousandths

B. 17.145

C. 10 + 7 + 0.1 + 0.04 + 0.005

MATH TIP

Equivalent decimals are different names for the same value.

(1.29) Comparing and Ordering Decimals

1. Use <, >, or = to compare each of the following pairs of decimals.

   A. 0.78 _____ 0.708

   B. 231.045 _____ 231.0404

   C. 74.107 _____ 74.1070

   D. 0.065 _____ 0.1

2. Identify the largest and smallest decimal in each of the following sets of numbers.

   A. 3.450   3.0461   0.3472   3.4051

   B. 91.207   91.0207   91.2008   91.1207

   C. 0.054   0.0540   0.540   0.0054

   D. 2.4670   0.24679   2.5   0.2384

3. Write the following decimals in order from least to greatest.

   A. 8.017   0.0817   0.743   0.05892

   B. 13.179   1.31790   0.138   13.32

BONUS

Place a decimal in each of the following blanks so that the five decimals are in order from greatest to least.

3.85, _____, 3.761, _____, 3.7

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(1.30) Addition of Decimals

1. Add the following numbers.

A.	6.3	B.	9.38	C.	1.09	D.	23.1
	+ 4.2		+ 0.73		0.57		9.07
					+6.463		+ 4.96

2. Add the following numbers.

A. 2.7 + 35.4

B. 0.96 + 1.847

C. 0.003 + 7.6 + 0.478

3. Tanya says that 36.7 + 7.46 = 111.3. Rachel says that the correct answer is 44.16. Who is wrong? What mistake did she make?

BONUS

It snowed four times last January in Bradley's town. It snowed 5 inches during the first storm, 4.5 inches during the second, 8.25 inches during the third, and 3.8 inches during the fourth. How much did it snow in January?

MATH TIP

To add decimals, be sure to line up the decimal points first. Then add the same way you add whole numbers.

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(1.31) Subtraction of Decimals

1. Subtract the following numbers.

    A. 18.47   B. 12.54   C.   8.105   D.   6.47
      − 6.35   − 3.07   − 3.917   − 5.52

2. Subtract the following numbers.

    A. $9.36 - 0.465$

    B. $8 - 3.457$

    C. $11.701 - 9.6324$

BONUS

When 0.927 is subtracted from this number, the answer is 0.073. What is the number?

3. Jessica bought school supplies that totaled $17.96. She paid with two ten-dollar bills. How much change should she receive?

MATH TIP

When subtracting decimals, line up the decimal points. If necessary, write equivalent decimals by placing a zero to the right of a decimal.

(1.32) Addition and Subtraction of Decimals

1. Add or subtract the following numbers.

A. $5.09 + 3.458$

B. $6.24 - 3.5$

C. $0.563 + 7$

D. $10.1 - 0.74$

2. Add or subtract the following numbers.

A. $5.21 - 0.9163$

B. $2.01 + 3 + 0.54 + 11.67$

C. $38.2 + 17.79 + 15.3$

D. $23 - 17.049$

3. Toby had the flu last week. His temperature was 103.2° F. His normal body temperature should be 98.6° F. How much higher than normal was his temperature?

BONUS

Derek's family drove to Florida for a vacation. They budgeted $200 for souvenirs and family gifts. At Disney World they spent $95.45 for souvenirs and gifts. At Universal Studios they spent $65.92. At Sea World they spent $38.95. Did they budget enough money for souvenirs and gifts? If they did, how much money was left over? If they did not budget enough, by how much did they go over their budget?

MATH TIP

You can check the answer to a subtraction problem by adding your answer to the number you subtracted.

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Name _____ Date _____

(1.33) Estimation of Decimal Sums and Differences

1. Estimate each of the following sums and differences.

A. 12.5	B. 7.06	C. 31.7	D. 8
$+\ 17.38$	$+\ 14.8$	$-\ 0.83$	$-\ 6.42$

2. Estimate each of the following sums and differences. Then compare your estimate with the actual answer.

A. $11.03 + 4.8 + 12.143$

B. $15.7 - 9.468$

3. Karl and some friends are going to a fast-food restaurant. Karl plans to buy a double cheeseburger for $3.29, a package of French fries for $0.99, and a soda for $0.99. He estimates that the total cost will be less than $5.00. He will pay with a five-dollar bill and believes he has enough money. Do you agree with him? Explain your answer.

BONUS

Estimate the sum of 21.75 + 9.08. Explain the steps you used for estimating.

MATH TIP

Estimation is a good way to check if an answer is reasonable.

Name _____ Date _____

(1.34) Multiplication of Decimals by Powers of Ten

1. Multiply the following numbers.

A. 0.5×100

B. 7.3×10

C. $0.14 \times 1{,}000$

D. 62.8×100

2. Find the missing factor in the following equations.

A. $5.38 \times$ _____ $= 53.8$

B. $210.6 \times$ _____ $= 2{,}106$

C. $0.46 \times$ _____ $= 460$

D. $0.08 \times$ _____ $= 8$

3. Multiply the following numbers.

A. 8.7×10^3

B. 0.9×10^4

C. 7.41×10^2

D. 0.003×10^5

BONUS

Because $5 \times 100 = 500$, Sam thought that to multiply 3.5×100 he only had to add two zeroes to 3.5. His answer would then be 3.500. Do you agree or disagree? Explain your answer.

MATH TIP

When you multiply by powers of ten, move the decimal to the right the same number of places as the number of zeroes in the factor.

Name _____ Date _____

(1.35) Multiplication of Decimals, I

1. Multiply the following numbers.

A. 6.2
   $\times$ 7

B. 0.84
   $\times$ 49

C. 0.67
   $\times$ 4.8

D. 54.5
   $\times$ 8.3

2. Multiply the following numbers.

A. 0.7×83

B. 7.8×0.043

C. 9.007×0.34

D. 0.438×7.04

BONUS

Explain why $2.5 \times 3.2 = 0.25 \times 32$.

3. A garden snail travels 0.03 mile per hour. There are 5,280 feet in a mile. How many feet does a garden snail travel in an hour?

MATH TIP

When multiplying decimals, you must position the decimal point correctly in your product. First count the total number of decimal places in the factors. Then count the same number of places from the right in your product.

(1.36) Multiplication of Decimals, II

1. Multiply the following numbers.

A.	0.604	B.	3.74	C.	0.049	D.	0.036
	× 2.3		× 0.29		× 6.3		× 0.47

2. Multiply the following numbers.

A. 0.408×0.78

B. 5.3×0.074

C. 8.09×0.302

D. 4.304×0.086

3. Multiply the following numbers. Round your answer to the nearest cent.

A. $\$0.69 \times 0.05$

B. $\$7.95 \times 0.08$

C. $\$8.99 \times 0.065$

D. $\$2.45 \times 0.035$

BONUS

Tara bought a new CD for $19.95. The sales tax on her purchase was equal to 0.025 of the cost of the CD. How much did she have to pay for the CD, including the sales tax?

MATH TIP

When multiplying money, products are usually rounded to the nearest cent. This is the hundredths place in value.

(1.37) Division of Decimals by Whole Numbers

1. Using rectangles, draw a model to show the quotient of $0.8 \div 2$.

2. Divide the following numbers.

A. $7\overline{)21.7}$ 　　　　 B. $4\overline{)4.84}$ 　　　　 C. $48\overline{)67.2}$ 　　　　 D. $21\overline{)264.6}$

BONUS

19.2 divided by this number equals 8. What is the number?

3. Jeanine and her two brothers and older sister decided to buy their mother a birthday present. The cost of the present was $29.95. They agreed to split the cost evenly among the four of them. Is this possible? Explain your answer.

MATH TIP

When dividing a decimal by a whole number, line up the decimal point in the quotient with the decimal point in the dividend. Divide as you would with whole numbers.

(1.38) Division of Decimals by Decimals

1. Divide the following numbers.

    A. $0.4\overline{)1.24}$ B. $0.9\overline{)4.77}$ C. $0.07\overline{)3.584}$ D. $0.08\overline{)2.568}$

2. Divide the following numbers.

    A. $23.45 \div 3.5$

    B. $25.38 \div 2.7$

    C. $9.250 \div 0.74$

    D. $934.4 \div 6.4$

BONUS

When you multiply a divisor and a dividend by the same multiple of 10, the quotient stays the same. Why? Explain your answer.

3. Roberto divided 0.515 by 0.5. His answer was 1.03. Nathan did the same problem but his answer was 0.103. Who was right? Explain the mistake that was made.

MATH TIP

To divide a number by a decimal, you must rewrite the divisor as a whole number by multiplying it by a multiple of 10. You must then multiply the dividend by the same multiple of 10. (This is the same as "moving" the decimal points to the right.)

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(1.39) Division of Decimals by Decimals (with Zeroes as Placeholders)

1. Divide the following numbers.

    A. $0.8\overline{)0.2}$ B. $0.4\overline{)18}$ C. $3.5\overline{)8.4}$ D. $0.42\overline{)0.147}$

2. Divide the following numbers.

    A. $0.182 \div 0.035$

    B. $22.65 \div 7.5$

    C. $305.5 \div 0.47$

    D. $24.96 \div 0.039$

BONUS

Is $4.62 \div 0.07 = 46.2 \div 0.7$?
Explain your answer.

3. Thomas helps his neighbors with their yard work. Last week he was paid $26.25. He worked a total of three and a half hours. How much did he earn per hour?

MATH TIP

Sometimes when you divide by a decimal you must use zeroes as placeholders in the dividend. This will allow you to express the quotient as a decimal.

Name _____ Date _____

(1.40) Repeating Decimals

1. Divide the following numbers. Use a bar to show the repeating decimal.

A. $3\overline{)1.0}$ B. $0.9\overline{)0.71}$ C. $0.6\overline{)4.25}$ D. $0.11\overline{)0.51}$

2. Divide the following numbers. Use a bar to show the repeating decimal.

A. $0.27\overline{)0.29}$ B. $3.3\overline{)0.74}$ C. $0.045\overline{)0.125}$ D. $0.81\overline{)0.9}$

3. Write an explanation of what a repeating decimal is.

BONUS

Use >, <, or = to compare
$0.17 \div 0.6$ and $1.7 \div 6$. Show
proof for your answer.

MATH TRIVIA

A *repeating* decimal is also called a *recurring* decimal.

(1.41) Estimation of Decimal Products and Quotients

1. Estimate the product or quotient for each of the following problems.

A. 0.8×2.4

B. $0.6\overline{)3.06}$

C. 4.16×0.08

D. $0.09\overline{)0.8206}$

2. Estimate the product or quotient for each of the following problems. Compare your estimate with the actual answer.

A. 30.55×4.7

B. $0.3233 \div 0.61$

3. Estimate the product or quotient for each of the following problems. Compare your estimate with the actual answer. Round your answers to the nearest hundredth.

A. 95.29×4.28

B. $27.38 \div 12.5$

BONUS

Clarissa's father is training to run a marathon. Last week he ran 78.5 miles. He ran seven days and ran the same distance each day. Clarissa says that an accurate estimate of the distance he ran each day is 11 miles. Is she correct? How might she have arrived at that estimate? Do you agree with her method? Explain your answer.

MATH TRIVIA

A marathon is a long footrace of usually 26 miles 385 yards (26.21875 miles or 42.195 kilometers).

Name _____ Date _____

(1.42) Models of Equivalent Fractions

1. Sketch a rectangle. Divide the rectangle into two equal parts. Use shading to show $\frac{1}{2}$.

2. Sketch two rectangles of the same size. Divide one rectangle into three equal sections. Use shading to show $\frac{1}{3}$. Divide the other rectangle into six equal sections. Use shading to show $\frac{2}{6}$. How does $\frac{1}{3}$ relate to $\frac{2}{6}$?

BONUS

Sketch two rectangles of the same size. Use them to show that $0.5 = \frac{1}{2}$.

3. Imagine you are helping a friend understand fractions. Explain what $\frac{3}{4}$ means. Give an example.

MATH TIP

A fraction is a number that names a part of a whole or part of a group. The *denominator* of a fraction is the number below the fraction bar that tells the number of equal parts that make up one whole. The *numerator* is the number above the fraction bar that tells how many equal parts are being considered.

Name _____ Date _____

(1.43) Equivalent Fractions

1. Find the missing numerator in the following equivalent fractions.

A. $\frac{2}{3} = \frac{}{9}$ B. $\frac{3}{4} = \frac{}{16}$ C. $\frac{3}{21} = \frac{}{7}$ D. $\frac{27}{30} = \frac{}{10}$

2. Write two equivalent fractions for each of the following. Use multiplication to find one equivalent fraction. Use division to find the other.

A. $\frac{5}{10}$ B. $\frac{4}{12}$ C. $\frac{12}{15}$ D. $\frac{18}{24}$

3. Find the missing equivalent fractions in the following series. Explain the patterns.

A. _____, $\frac{2}{6}$, _____, $\frac{4}{12}$, _____

B. $\frac{2}{7}$, _____, _____, $\frac{8}{28}$, _____

BONUS

Lily said she finished her homework in 45 minutes last night. Sara said she finished her homework in $\frac{3}{4}$ of an hour. Lily said she worked on her homework longer than Sara did. Was she right? Explain your answer.

MATH TIP

If you multiply or divide the numerator and denominator of a fraction by the same number, you will get an equivalent fraction.

(1.44) Simplifying Fractions

1. Find the greatest common factor of the numerator and denominator of each of the following fractions.

A. $\frac{3}{12}$ B. $\frac{10}{15}$ C. $\frac{21}{28}$ D. $\frac{18}{21}$

2. Simplify the following fractions. Identify which are equivalent.

A. $\frac{14}{16}$ B. $\frac{18}{30}$ C. $\frac{8}{24}$ D. $\frac{3}{9}$

E. $\frac{4}{12}$ F. $\frac{16}{18}$ G. $\frac{15}{45}$ H. $\frac{12}{36}$

3. Marcus says it is not necessary to find the greatest common factor of the numerator and denominator to simplify a fraction. He says that any common factor between the numerator and denominator can be used to simplify the fraction. Do you agree or disagree? Explain your answer.

BONUS

Megan and her brother, Tim, help their father in his bookstore. Last Saturday they had to unpack ten boxes of novels. After they had unpacked eight boxes, Tim said they had $\frac{2}{10}$ more of the unpacking to do. Megan said they were finished with $\frac{4}{5}$ of the job. Who was right? Explain your answer.

MATH TIP

A fraction is in its simplest form if the greatest common factor of the numerator and denominator is 1.

Name _____ Date _____

1.45 Whole Numbers, Fractions, and Decimals on a Number Line

1. Write the letter of each point shown on the following number line.
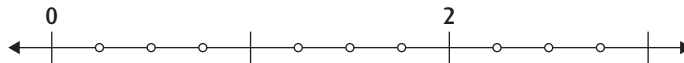
A. $1\frac{1}{4}$ B. 1   C. $2\frac{3}{4}$ D. $\frac{1}{2}$ E. 3   F. $2\frac{1}{2}$ G. $1\frac{3}{4}$ H. $\frac{1}{4}$

2. Write the letter of each point shown on the following number line.
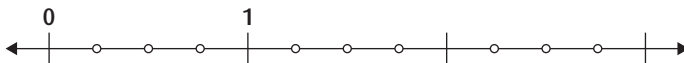
A. 3.0   B. 0.5   C. $1\frac{3}{4}$ D. 2.0   E. 0.25   F. 2.75   G. $2\frac{1}{2}$ H. $1\frac{1}{2}$

3. Use decimals to write the value that corresponds to each letter on the following number line.
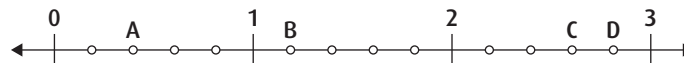
A = _____

B = _____

C = _____

D = _____

BONUS

Draw a number line that shows the following points.

A. $2\frac{1}{5}$ **B.** $1\frac{4}{5}$

C. 2.8   **D.** 0.6

MATH TIP

Every number can be paired with a point on a number line.

Name _____ Date _____

(1.46) Comparing and Ordering Fractions

1. Sketch a model showing how $\frac{2}{3}$ compares to $\frac{3}{4}$.

2. Compare each of the following pairs of fractions. Use <, >, or =.

A. $\frac{7}{8}$ —— $\frac{5}{8}$ 　　　 B. $\frac{3}{5}$ —— $\frac{15}{25}$ 　　　 C. $\frac{2}{3}$ —— $\frac{7}{9}$ 　　　 D. $\frac{3}{4}$ —— $\frac{4}{5}$

3. Write the fractions of each of the following sets from least to greatest.

A. $\frac{1}{3}, \frac{9}{15}, \frac{2}{5}$

B. $\frac{7}{9}, \frac{1}{3}, \frac{15}{18}, \frac{4}{6}$

C. $\frac{15}{24}, \frac{3}{4}, \frac{7}{12}, \frac{1}{2}, \frac{4}{6}$

BONUS

A cookie recipe calls for $\frac{3}{4}$ of a cup of chocolate chips. Deena has $\frac{2}{3}$ of a cup. Does she have enough? If she does, how much extra does she have? If she doesn't have enough, how much more does she need?

MATH TIP

To compare fractions with like denominators, compare the numerators. To compare fractions with unlike denominators, find common denominators, write equivalent fractions, and then compare the numerators.

Name _____ Date _____

(1.47) Addition and Subtraction of Fractions with Like Denominators

1. Sketch a model to show the following equations.

A. $\frac{2}{5} + \frac{3}{5} = 1$

B. $\frac{7}{8} - \frac{5}{8} = \frac{2}{8} = \frac{1}{4}$

2. Find the sum or difference for the following problems. Simplify your answers.

A. $\frac{3}{7} + \frac{2}{7}$

B. $\frac{8}{9} - \frac{5}{9}$

C. $\frac{7}{18} + \frac{2}{18}$

D. $\frac{11}{12} - \frac{8}{12}$

3. Complete each of the following equations.

A. $\underline{\quad} + \frac{4}{9} = \frac{8}{9}$

B. $\frac{13}{15} - \underline{\quad} = \frac{8}{15}$

C. $\frac{7}{12} + \underline{\quad} = \frac{11}{12}$

D. $\frac{9}{10} - \underline{\quad} = \frac{1}{10}$

BONUS

Steve's mother bought pizza for Steve and his two friends, Justin and Michael. The pizza was cut into eight slices. Steve ate two pieces, Justin ate three pieces, and Michael ate two pieces. What fraction of the total pie did the boys eat? Write a fraction to show what part of the pie was left.

MATH TIP

After adding or subtracting fractions, always simplify your answers.

(1.48) Addition and Subtraction of Fractions with Unlike Denominators

1. Find the sum or difference for the following problems. Simplify your answers.

A. $\frac{3}{8} + \frac{1}{4}$

B. $\frac{2}{3} - \frac{1}{6}$

C. $\frac{2}{5} + \frac{4}{10}$

D. $\frac{7}{9} - \frac{1}{3}$

2. Find the sum or difference for the following problems. Simplify your answers.

A. $\frac{3}{4} - \frac{2}{3}$

B. $\frac{1}{10} + \frac{11}{15}$

C. $1 - \frac{7}{8}$

D. $\frac{3}{4} + \frac{1}{6}$

3. Explain the steps necessary for adding fractions with unlike denominators. Provide an example with your explanation. How is this process different for subtracting fractions? Or is the process the same?

BONUS

Raul spent one hour doing his homework last night. He spent $\frac{1}{4}$ of an hour on math and $\frac{1}{3}$ of an hour on history. He spent the rest of the time on language arts. What part of an hour did he spend on language arts? How many minutes was this?

MATH TIP

When adding or subtracting fractions and mixed numbers, do not add or subtract the denominators.

1.49 Fractions and Mixed Numbers

1. Sketch circles to model the following fractions and mixed numbers.

A. $\frac{2}{3}$ 　　　　 B. $1\frac{1}{2}$ 　　　　 C. $3\frac{3}{4}$ 　　　　 D. $2\frac{3}{5}$

2. Write each of the following fractions as a mixed number. Simplify your answers.

A. $\frac{7}{2}$ 　　　　 B. $\frac{22}{4}$ 　　　　 C. $\frac{20}{5}$ 　　　　 D. $\frac{38}{6}$

3. Write each of the following mixed numbers as a fraction.

A. $2\frac{3}{5}$ 　　　　 B. $6\frac{4}{7}$ 　　　　 C. $2\frac{3}{8}$ 　　　　 D. $4\frac{5}{6}$

BONUS

This mixed number is $\frac{1}{3}$ larger than $\frac{5}{6}$. What is this mixed number?

MATH TRIVIA

The word *fraction* comes from the Latin word *fractus,* which means "to break."

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(1.50) Addition and Subtraction of Fractions and Mixed Numbers with Like Denominators

1. Find the sum or difference for the following problems. Simplify your answers.

A. $3\frac{2}{5} + \frac{2}{5}$

B. $6\frac{7}{8} - \frac{3}{8}$

C. $\frac{1}{5} + 3\frac{2}{5}$

D. $10\frac{7}{12} - 1\frac{3}{12}$

2. Find the sum or difference for the following problems. Simplify your answers.

A. $8\frac{5}{9} + 4\frac{1}{9}$

B. $5\frac{7}{15} - 3\frac{2}{15}$

C. $8\frac{1}{9} + 4\frac{2}{9}$

D. $11\frac{7}{10} - 4\frac{3}{10}$

BONUS

Brian added $6\frac{3}{8}$ and $3\frac{5}{8}$ and got $9\frac{1}{2}$. Was he right? If he was wrong, explain his mistake. What should the correct answer be?

3. Ashley is on the middle school track team. On Tuesday she ran $1\frac{3}{4}$ miles. On Wednesday she ran $1\frac{1}{4}$ miles. On Thursday she ran 1 mile. Find the total number of miles Ashley ran.

MATH TIP

When adding or subtracting fractions with like denominators, remember to add or subtract only the numerators.

(1.51) Addition and Subtraction of Mixed Numbers with Unlike Denominators (with Regrouping), I

1. Find the sum or difference for the following problems. Simplify your answers.

A. $5\frac{1}{12} + 2\frac{3}{4}$

B. $4\frac{5}{6} - 3\frac{2}{3}$

C. $8\frac{3}{10} - 6\frac{1}{5}$

D. $4\frac{1}{6} + 3\frac{3}{4}$

2. Find the sum or difference for the following problems. Simplify your answers.

A. $6\frac{3}{4} + 1\frac{1}{2}$

B. $14\frac{8}{9} - 8\frac{3}{4}$

C. $7\frac{5}{8} - 2\frac{4}{7}$

D. $9\frac{3}{8} + 7\frac{11}{12}$

3. Find the sums for the following problems. Simplify your answers.

A. $3\frac{2}{3} + 5\frac{1}{4} + 2\frac{3}{8}$

B. $11\frac{7}{9} + 4\frac{1}{2} + 7\frac{5}{6}$

BONUS

Billy enjoys cross-country skiing with his family. On Saturday they skied $4\frac{3}{4}$ miles. On Sunday they skied $3\frac{1}{8}$ miles in the morning and $1\frac{2}{3}$ miles in the afternoon. On which day did they ski more? If they went skiing on Monday and skied another $4\frac{2}{3}$ miles, how many miles will they have skied during the three days?

MATH TIP

After adding, if the fraction in your answer is more than 1, you must regroup to make the fraction less than one.

(1.52) Addition and Subtraction of Mixed Numbers with Unlike Denominators (with Regrouping), II

1. Find the sum or difference for the following problems. Simplify your answers.

A. $9\frac{7}{12} - 6\frac{1}{4}$

B. $13\frac{3}{5} + 12\frac{7}{10}$

C. $12\frac{2}{6} + 3\frac{8}{9}$

D. $17\frac{5}{8} - 6\frac{1}{4}$

2. Find the sum or difference for the following problems. Simplify your answers.

A. $7\frac{2}{9} - 4\frac{2}{3}$

B. $5\frac{3}{8} + 4\frac{5}{6}$

C. $6\frac{4}{9} + 3\frac{10}{12}$

D. $11\frac{3}{8} - 8\frac{11}{12}$

3. The answer to a subtraction problem is $3\frac{5}{8}$. The denominator of one of the mixed numbers is 4 and the denominator of the other mixed number is 8. One of the whole numbers is 2. No regrouping is needed. Write the problem.

BONUS

Every few months Sue empties the jar in which she places her loose change. She then counts the money and takes it to the bank.

Last month Sue counted $13\frac{1}{4}$ dollars in quarters, $7\frac{1}{2}$ dollars in dimes, $2\frac{1}{2}$ dollars in nickels, and $2\frac{1}{2}$ dollars in pennies. Write a mixed number to show how much money she had. How much money was this in dollars and cents?

MATH TRIVIA

In 1202, Leonardo of Pisa (1170–1250), who was also known as Fibonacci, became the first European to use the horizontal fraction bar.

Name _____ Date _____

1.53 Estimation of Fraction Sums and Differences

1. Using estimation, place a point for each fraction on the following number line. Label the points.

```
      0            1            2            3
  ←───┼────────────┼────────────┼────────────┼───→
```

A. $2\frac{2}{3}$ B. $1\frac{1}{2}$ C. $1\frac{2}{5}$ D. $\frac{3}{4}$

E. $2\frac{3}{8}$ F. $\frac{1}{3}$ G. $2\frac{9}{10}$ H. $\frac{1}{10}$

2. Estimate each sum or difference for the following problems.

A. $\frac{8}{9} + 3\frac{7}{8}$

B. $1\frac{6}{7} - \frac{3}{4}$

C. $4\frac{2}{3} - 1\frac{9}{10}$

D. $6\frac{1}{5} + 8\frac{5}{6}$

3. Todd estimated the sum of $\frac{7}{8} + \frac{1}{4} + \frac{1}{2}$ as $1\frac{1}{2}$. Was this an accurate estimate? If it was not accurate, what is a better estimate? Explain your answer.

BONUS

Mari and her father went hiking in a park. They wanted to hike at least 5 miles. Mari checked a map for the trails they should take. The first trail from the visitor center to the picnic grounds was $1\frac{3}{4}$ miles. The distance from the picnic grounds to the river was $2\frac{7}{8}$ miles. The distance from the river back to the visitor center was $\frac{3}{5}$ mile. Mari estimated that if she and her father followed this course, they would walk slightly more than 5 miles. Was she right? Explain your answer. How far would they actually walk?

MATH TIP

Estimating fractions as whole numbers can help you find accurate estimates of sums and differences.

Name _____ Date _____

(1.54) Multiplication of Simple Fractions

1. Use circles to sketch models of the following fractions.

A. $2 \times \frac{1}{3}$

B. $4 \times \frac{1}{2}$

C. $3 \times \frac{3}{4}$

2. Find the product for the following problems. Simplify your answers.

A. $\frac{1}{2} \times \frac{3}{5}$

B. $16 \times \frac{3}{8}$

C. $\frac{2}{3} \times \frac{3}{4}$

D. $\frac{2}{5} \times \frac{7}{8}$

3. Find the missing digit in the following equations.

A. $\frac{?}{3} \times 9 = 3$

B. $\frac{1}{?} \times 16 = 4$

C. $\frac{3}{4} \times \frac{2}{?} = \frac{1}{2}$

D. $\frac{3}{5} \times \frac{?}{3} = \frac{2}{5}$

BONUS

There are 80 students in the Hillside School Band. $\frac{1}{8}$ of the students play the clarinet. Of these students, $\frac{1}{2}$ also play the flute. How many students play both the flute and the clarinet? Four more students play only the flute. Write a fraction that represents the ratio of the number of students who play only the flute compared to the number of students in the entire band.

MATH TIP

To find the product of two fractions, multiply the numerators, then multiply the denominators. Simplify if possible.

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1.55 Multiplication of Fractions and Mixed Numbers

1. Find the product for the following problems. Simplify your answers.

A. $\frac{5}{6}$ of 24

B. $\frac{3}{8}$ of 32

C. $\frac{5}{7}$ of $\frac{7}{10}$

D. $\frac{2}{3}$ of $\frac{9}{10}$

2. Find the product for the following problems. Simplify your answers.

A. $3\frac{1}{4} \times 6$

B. $1\frac{3}{4} \times 3\frac{1}{2}$

C. $2\frac{1}{2} \times 1\frac{2}{3}$

D. $1\frac{1}{4} \times 2\frac{1}{3}$

3. Jason earned $20 last week doing chores around his neighborhood. He spent $\frac{1}{4}$ of his earnings and saved the rest. How much money did Jason save?

BONUS

On Saturday Becky spent an hour and a half doing research for her history report. She spent $\frac{2}{3}$ of this time working on the Internet. How many minutes did she spend working on the Internet?

MATH TIP

Before multiplying a mixed number, you must change it to an improper fraction.

(1.56) Multiplication of Mixed Numbers

1. Find the product for the following problems. Simplify your answers.

A. $1\frac{1}{2} \times 1\frac{1}{2}$

B. $2 \times 3\frac{1}{4}$

C. $3\frac{3}{4} \times 4\frac{2}{5}$

D. $3\frac{1}{3} \times 6$

2. Find the product for the following problems. Simplify your answers.

A. $1\frac{1}{3} \times 4\frac{1}{4}$

B. $1\frac{3}{4} \times 2\frac{2}{3}$

C. $5\frac{1}{4} \times 6 \times 3\frac{1}{3}$

D. $3 \times 6\frac{2}{3} \times 1\frac{1}{2}$

3. During a typical week David sleeps $8\frac{3}{4}$ hours on the five school nights and $9\frac{1}{2}$ hours on the other two nights. How many hours of sleep does he get in a typical week?

BONUS

A recipe for baking 24 chocolate chip cookies calls for $1\frac{3}{4}$ cups of chocolate chips. Amanda wants to bake three dozen cookies. How many cups of chocolate chips does she need?

MATH TIP

For some fractions, you can simplify the factors before you multiply.

1.57 Division of Simple Fractions

1. Use rectangles to sketch models of the following problems.

A. $2 \div \frac{1}{2}$ B. $2 \div \frac{1}{3}$ C. $3 \div \frac{1}{3}$

2. Find the quotient for the following problems. Simplify your answers.

A. $4 \div \frac{1}{3}$

B. $\frac{3}{4} \div \frac{1}{4}$

C. $\frac{5}{8} \div \frac{5}{7}$

D. $\frac{5}{9} \div \frac{2}{3}$

3. Which of the following statements are true? Correct the false statements.

A. Dividing by $\frac{3}{4}$ is the same as multiplying by $\frac{1}{4}$.

B. Dividing by 2 is the same as multiplying by $\frac{1}{2}$.

C. You must change both fractions to their reciprocals before dividing them.

D. The reciprocal of $\frac{2}{5}$ is $\frac{3}{5}$.

E. The reciprocal of 1 is 1.

BONUS

Cheryl says that $\frac{3}{4}$ of $\frac{2}{3}$ is the same as $\frac{2}{3} \div \frac{3}{4}$. Is she right? Explain your answer.

MATH TIP

To divide fractions, multiply by the reciprocal of the divisor. Simplify if possible.

(1.58) Division of Fractions and Mixed Numbers

1. Find the quotient for the following problems. Simplify your answers.

A. $2\frac{1}{4} \div \frac{1}{4}$

B. $3\frac{3}{8} \div \frac{1}{8}$

C. $\frac{4}{5} \div 1\frac{2}{3}$

D. $1\frac{1}{3} \div 3\frac{2}{5}$

2. Find the quotient for the following problems. Simplify your answers.

A. $3\frac{1}{2} \div 1\frac{3}{4}$

B. $4\frac{1}{2} \div 1\frac{1}{3}$

C. $8\frac{2}{3} \div 1\frac{1}{6}$

D. $3\frac{5}{6} \div 2\frac{1}{3}$

3. Jessica is making party favors for a surprise birthday party for her little brother. She will tie each favor with a $4\frac{1}{2}$-inch ribbon. If she buys a 72-inch spool of ribbon, how many favors can she make?

BONUS

Don and his father are building shelves for Don's room. They have a board that is 12 feet long. Each shelf will be $2\frac{1}{4}$ feet long. How many shelves can they cut from the 12-foot board? How many inches will be left over?

MATH TIP

Dividing any fraction or mixed number by 1 does not change the value of the fraction or mixed number.

59

Name _____ Date _____

(1.59) Division of Mixed Numbers

1. Find the quotient for the following problems. Simplify your answers.

A. $3\frac{3}{4} \div 2\frac{1}{2}$

B. $7 \div 3\frac{1}{2}$

C. $7\frac{1}{2} \div 4$

D. $4\frac{1}{6} \div 3\frac{1}{3}$

2. Find the quotient for the following problems. Simplify your answers.

A. $4\frac{4}{9} \div 2\frac{2}{3}$

B. $5\frac{3}{5} \div 4\frac{2}{3}$

C. $5\frac{3}{4} \div 2\frac{2}{3}$

D. $26\frac{1}{4} \div 4\frac{3}{8}$

3. Roberta babysat last week for $7\frac{1}{2}$ hours. She was paid $26.25. How much was she paid per hour?

BONUS

The quotient of a division problem is $6\frac{1}{4}$. The divisor is a mixed number that is less than 2. The digits of the divisor are 1, 4, and 5. Find the dividend.

MATH TRIVIA

The concept of fractions can be traced back to the ancient Babylonians and Egyptians nearly four thousand years ago, but it was not until around 150 BC that mathematicians in India wrote about operations with fractions.

1.60 Estimation of Fraction Products and Quotients

1. Estimate the product or quotient for each of the following problems.

A. $3\frac{4}{5} \times 2\frac{1}{4}$

B. $6\frac{1}{8} \div 2\frac{3}{4}$

C. $8\frac{1}{2} \div 2\frac{1}{2}$

D. $1\frac{2}{3} \times 8\frac{5}{6}$

2. Estimate the product or quotient for each of the following problems. Then compare your estimate with the actual answer.

A. $12\frac{1}{3} \div 2\frac{1}{2}$

B. $3\frac{2}{3} \times 1\frac{2}{5}$

3. Explain how to estimate $4\frac{3}{4} \times 2\frac{1}{6}$.

BONUS

Raymond is helping his older brother paint three rooms in their home. All of the rooms are about the same size and all will be painted white. They will need $3\frac{2}{3}$ gallons of paint for each room. Raymond's brother estimates that they will need 12 gallons in all, but Raymond says they will need only 11. Whose estimate is more accurate? How do you think they arrived at different estimates? Explain your answer.

MATH TIP

Fractions may be written with a slanted (3/4) or horizontal ($\frac{3}{4}$) bar. The slanted bar is called a *solidus* and the horizontal bar is called a *verniculum*.

Name _____ Date _____

Expressing Fractions as Decimals

1. Write each of the following fractions as a decimal.

A. $\frac{3}{10}$ B. $\frac{1}{2}$ C. $\frac{3}{4}$ D. $\frac{3}{8}$ E. $\frac{8}{25}$ F. $\frac{13}{20}$

2. Write each of the following fractions as a decimal.

A. $\frac{9}{16}$ B. $1\frac{27}{50}$ C. $\frac{2}{3}$ D. $3\frac{2}{9}$ E. $\frac{5}{6}$ F. $2\frac{5}{11}$

3. Compare each of the following pairs. Write <, >, or =.

A. $\frac{1}{2}$ ___ $0.\overline{5}$

B. $\frac{4}{9}$ ___ 0.44

C. 0.8750 ___ $\frac{7}{8}$

D. $0.0\overline{3}$ ___ $\frac{1}{3}$

BONUS

Willie changed $\frac{21}{30}$ to an equivalent decimal by dividing the numerator by the denominator. Jennifer looked at the same fraction and announced that its decimal equivalent is 0.7. When Willie asked her how she got the correct answer so quickly, Jennifer said, "It's simple." She went on to explain. What did Jennifer tell him?

MATH TIP

You can express any fraction as an equivalent decimal by dividing the numerator by the denominator.

Name _____ Date _____

(1.62) Ratios

1. Write the ratio that represents each of the following situations.

A. Rodney's baseball team won 7 games and lost 9. Write the ratio of the number of games the team won to the number of games the team lost.

B. Melissa has five of the six CDs recorded by her favorite singer. Write the ratio of the number of CDs she has to the number of CDs the singer recorded.

2. Write each ratio as a fraction.

A. 6 to 7

B. 9 to 4

C. 7 to 8

D. 5 to 3

3. Shari says that 3 to 4 can be written as 3:4 or $\frac{3}{4}$. She says it can also be written as 4:3 or $\frac{4}{3}$. Is she right? Explain your answer.

BONUS

Five hundred ten students attend Washington Middle School. On average, two out of three students buy the school lunch each day. How many students is this?

MATH TIP

A ratio is another way of writing a fraction.

63

(1.63) Ratios and Proportions

1. Which of the following pairs of ratios are equivalent?

A. $\frac{2}{3}$ $\frac{8}{12}$

B. 12 to 36   6 to 15

C. $\frac{21}{24}$ $\frac{7}{8}$

D. 18:21   9:10

2. Solve each of the following proportions.

A. $\frac{3}{x} = \frac{12}{16}$

B. $\frac{9}{7} = \frac{x}{35}$

C. $\frac{3.5}{4} = \frac{x}{24}$

D. $\frac{11}{4.2} = \frac{27.5}{x}$

BONUS

Luke's grandfather is an avid reader. In the library in his den at home, novels outnumber nonfiction books $3\frac{1}{2}$ to 1. If there are 150 nonfiction books in Luke's grandfather's library, how many novels are there?

3. Randy and his sister Rachel were helping their mother with food shopping. There was a special on one brand of cereal: three 15-ounce boxes for $4.00 or two 20-ounce boxes for $4.00. Randy said that the three 15-ounce boxes were the better buy. Rachel said that the two 20-ounce boxes were the better buy. Who was right? Write proportions to explain your answer.

MATH TIP

If the cross products of two fractions are equal, then the ratios are equivalent.

1.64 Percents

1. Use grid paper with a hundred squares to model the following percents.

A. 75%   B. 32%   C. 9%   D. 100%

2. Write each of the following as a percent.

A. $\frac{17}{100}$

B. 0.54

C. 23 out of 100

D. 89:100

3. The favorite school lunch for 23 out of every 100 students in Valley School is hot dogs. The favorite lunch for 37 out of every 100 students is pizza. The favorite lunch for 15 out of every 100 students is tacos. What percent of students prefer hot dogs, pizza, or tacos for lunch?

BONUS

In an average winter, Natalie's town receives 40 inches of snow. Last winter they received 150% of their usual amount of snowfall. How much snow fell in Natalie's town last winter?

MATH TIP

Percent means "per hundred." A percent is a special ratio in which the denominator of the fraction is 100.

(1.65) Equivalent Fractions, Decimals, and Percents

1. Write each of the following percents as a fraction and decimal. Simplify the fractions.

A. 35%   B. 9%   C. 85%   D. 64%   E. 18%   F. 5%

2. Write each of the following decimals as a fraction and percent. Simplify the fractions.

A. 0.23   B. 0.5   C. 0.75   D. 1.25   E. 1   F. 0.125

3. Write each set of numbers in order from least to greatest.

A. $\frac{3}{5}$ 0.5   55%

B. 200%   0.2 $\frac{1}{4}$ $0.\overline{3}$

C. $\frac{7}{9}$ 80% $\frac{2}{3}$ 0.75   0.659

BONUS

On a recent math test, Theo got $\frac{4}{5}$ of the problems right, Alyssa scored 90%, Paul got 7 out of 10 problems right, and Sylvia had 3 correct answers for every incorrect answer. Rank the scores in order from least to greatest.

MATH TRIVIA

No one knows who was the first person to use the symbol for percent, %. The origin of the symbol can be traced back to an anonymous Italian manuscript written around 1475.

Name _____ Date _____

1.66 Percents of Numbers, I

1. Find the percent of each of the following numbers.

    A. 25% of 96

    B. 35% of 60

    C. 5% of 24

    D. 29% of 100

2. Find the percent of each of the following numbers.

    A. 36% of 436

    B. 84% of 228

    C. 150% of 842

    D. 125% of 62

3. Hallie took 36 pictures with her new digital camera. She posted 75% of them on her Web site. How many pictures did she post to her Web site? Of the pictures she posted, she e-mailed a third to friends. How many pictures did she e-mail to friends?

BONUS

Alex and James pitch for the same baseball team. Alex won 60% of the 10 games he pitched. James won 50% of the 14 games he pitched. Who won more games? If the total number of games the two boys won equals 52% of the total number of games their team played, how many games did the team play?

MATH TIP

Find the percent of a number by changing the percent to a decimal or fraction and multiplying.

(1.67) Percents of Numbers, II

1. Find the percent of each of the following numbers.

A. 75% of 96

B. 8% of 64

C. 93% of 270

D. 175% of 80

2. Find the percent of each of the following numbers.

A. 16.5% of 65

B. $\frac{1}{2}$% of 40

C. 42.5% of 368

D. $7\frac{2}{3}$ % of 88

3. Four hundred students are enrolled in Felicia's school. Yesterday $5\frac{1}{2}$% of the students were absent. How many students were present?

BONUS

The Cougars played 18 basketball games this year and won 12 of them. What percent of the games did they win? What fraction of their games did they win? Write a ratio of the games they won to the games they lost. How many more times did they win than lose?

MATH TIP

As with fractions, finding a percent "of" a number means multiply.

1.68 Finding Numbers When the Percent Is Known and Finding the Percent

1. Solve for x in the following problems.

A. 75% of $x = 72$ B. 25% of $x = 75$

C. 32% of $x = 24$ D. 85% of $x = 136$

2. Solve for x in the following problems.

A. x% of $96 = 24$

B. x% of $65 = 52$

C. x% of $150 = 54$

D. x% of $480 = 24$

3. Solve for x in the following problems.

A. 175% of $x = 224$

B. x% of $240 = 90$

C. 62.5% of $x = 160$

D. x% of $24 = 30$

BONUS

Martin works part-time in a local sandwich shop. In a typical week he works 12 hours and earns $90. His boss just gave him a raise, so Martin now earns $94.50 per week. What is the percent of Martin's raise?

MATH TRIVIA

About 10% of the world's population is left-handed. The ratio of righties to lefties is 9 to 1.

(1.69) Discounts and Sale Prices

1. Find the discount on the following items. Round the discounts to the nearest cent.

    A. A DVD at a regular price of $19.95, with a discount of 20%

    B. A pair of jeans at a regular price of $39.99, with a discount of 15%

2. Find the discount and sale price on the following items. Round the sale prices to the nearest cent.

    A. A sweater at a regular price of $49.59, with a discount of 30%

    B. A cell phone at a regular price of $129.69, with $\frac{1}{4}$ off

3. Caryn went shopping with her mother. At Carter's Clothing Store, Caryn found a special on blouses. If she bought three at a regular price of $19.95 each, she would receive a 30% discount on the total cost of the purchase. At Baxter's Department Store, she could buy the same three blouses. If she bought two blouses at the price of $19.95 each, the third blouse would be free. Which is the better buy? Explain your answer.

> # BONUS
>
> Rick and Krista went shopping. Rick wanted to buy a new CD of his favorite singer. The regular price of the CD was $21.99 but it was discounted by $33\frac{1}{3}$%. Rick said he wished he had his calculator so he could find how much he would save with the discount. Krista said the discount was $7.33. Rick asked her how she figured out the discount. She said she used a fraction. How do you think Krista determined the discount?

MATH TIP

When finding discounts and sale prices, you must round answers to the nearest cent.

(1.70) Tips and Total Bills

1. Samantha took her little brother to a local ice-cream shop. She bought two ice-cream sundaes for $7.90. When she paid, she included a 10% tip. How much was the tip? What is the total amount Samantha paid?

2. When Lisa and her family went on vacation last year, her father hired a shuttle service to drive them to the airport. The cost of the fare for the shuttle was $69.95. Lisa's father paid the driver and gave him a 20% tip. How much was the tip? What was the total amount Lisa's father paid?

3. Juan's family went to dinner. The total bill, not including the tip, was $83.49. Juan's father paid with five twenty-dollar bills, which he thought included at least a 15% tip. He did not want any change. Do you agree that he included a 15% tip with his payment? Explain your answer.

BONUS

When Brandon goes out to dinner, he likes to leave a 15% tip, but he always has trouble figuring out 15% of the bill. One day he mentioned this to his friend Aaron. Aaron explained an easy way to calculate a 15% tip. He told Brandon to multiply the bill by 0.10, then find $\frac{1}{2}$ of that product and add the answer to the product. That calculation, Aaron said, would result in a tip of 15%. Is he right? Explain your answer and provide an example.

MATH TRIVIA

The word *tip* is thought to be an acronym for "to insure promptness" of service. The custom of tipping can be traced back over two thousand years to the Roman Empire.

71

(1.71) Sales Tax

1. Find the sales tax and total cost of each of the following items. Round your answers to the nearest cent.

A. Price: $29.95   Sales Tax: 5%

B. Price: $74.50   Sales Tax: 3%

2. Find the sales tax and total cost of each of the following items. Round your answers to the nearest cent.

A. Price: $49.95   Sales Tax: $2\frac{1}{2}$%

B. Price: $89.39   Sales Tax: 3.5%

3. Teresa wanted to buy athletic socks for jogging and working out. She could buy three individual pairs for $3.49 each, or a three-pack of the same socks for $10.47. She would have to pay a 5% sales tax. Teresa figured that if she bought each pair of socks individually, she would pay less sales tax than if she bought a package of socks. Was she right? Explain your answer.

BONUS

Anthony wants to buy a new computer system for $849.69. His state charges a 4.5% sales tax. He lives only 20 minutes from a neighboring state that does not charge a sales tax. He can buy the same computer system for the same price in the nearby state. Should he? Will the savings be worth the trip and travel costs? Explain your answer.

MATH TIP

Sales tax is added to the price of an item. The amount of the sales tax depends on where the item is being sold.

(1.72) Simple and Compound Interest

1. James opened a bank account that pays simple interest of 4% per year. He opened the account with $250. How much interest did he earn at the end of one year?

2. Melinda opened an account that pays $5\frac{1}{4}$% interest compounded every six months. She opened the account with $750. How much interest did she earn after one year? What was her principal at the end of the year?

3. Christy wanted to invest $400 in a bank account for three years. She wanted to get the best return for her money. She could open an account that paid 5% simple interest, or she could open an account that paid 4.75% interest compounded quarterly. Which account is the better choice? Explain your answer.

BONUS

Stacey started a savings account with $500. The account pays 4.25% interest compounded quarterly. What was her principal after three months? Six months? Nine months? One year? How much money in total interest did she earn that year?

MATH TIP

Simple interest is not added to the principal. Compound interest is added to the principal. Interest is then paid on the new principal.

(1.73) Percent of Increase and Decrease

1. Find the percent of the following changes. Label each change an increase or a decrease.

A. From 50 to 25

B. From 15 to 20

C. From 120 to 110

D. From 125 to 200

2. Yvonne's test average increased from 85 to 90. How many points did her average increase? What was the percent of increase? Round your answer to the nearest percent.

BONUS

Do you agree with the following statement? If the price of an item doubles, the percent of increase is 100%. Explain your answer.

3. The cost of a video game was originally $59.99. It is now on sale for $44.99. How much did the price decrease? What was the percent of decrease? Round your answer to the nearest percent.

MATH TIP

To find the percent of increase, use this formula: $\dfrac{increase}{original} = \dfrac{n}{100}$
where *n* is the percent of increase.

To find the percent of decrease, use this formula: $\dfrac{decrease}{original} = \dfrac{n}{100}$
where *n* is the percent of decrease.

Name _____ Date _____

(1.74) Exponents

1. Find the value of each of the following terms.

A. 3^4 B. 2^3 C. 1^6 D. 5^3 E. 3^3 F. 2^6 G. 10^3 H. 7^4

2. Write each of the following expressions by using an exponent.

A. $2 \times 2 \times 2$

B. $4 \times 4 \times 4 \times 4 \times 4 \times 4 \times 4$

C. $5 \times 5 \times 5 \times 5 \times 5$

D. $8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8 \times 8$

3. Compare each of the following values. Use $<$, $>$, or $=$.

A. 4^4 _____ 5^3

B. 3^5 _____ 2^8

C. 6^3 _____ 8^2

D. 4^6 _____ 10^3

BONUS

Explain why 7^4 is not equal to 4^7.

MATH TRIVIA

René Descartes (1596–1650) was the first person to use the modern form of raised numbers for powers. The notation appeared in a book Descartes published in 1637.

75

(1.75) Scientific Notation

1. Write each of the following in scientific notation.

    A. 3,000,000   B. 420,000

    C. 863,000,000   D. 7,375,000

2. Write each of the following expressions in standard form.

    A. 3×10^3 B. 7.6×10^4

    C. 4.87×10^7 D. 2.14×10^8

3. Write each of the following expressions in scientific notation.

    A. 0.00342

    B. 0.0000276

    C. 0.001032

    D. 0.000019

BONUS

Cassie wrote 327,000,000 in scientific notation as 327×10^6. Was she correct? Explain your answer.

MATH TIP

Scientific notation allows you to write very large and very small numbers easily as a product of two factors.

Name _____ Date _____

(1.76) Square Roots

1. Find the square root of each of the following perfect squares.

A. 25   B. 16   C. 9   D. 1   E. 49   F. 81

2. Find the square root of each of the following.

A. $\sqrt{144}$ B. $\sqrt{1.21}$ C. $\sqrt{0.16}$

D. $\sqrt{1.96}$ E. $\sqrt{2.25}$ F. $\sqrt{10,000}$

3. Solve the following problems.

A. $\sqrt{100} + \sqrt{36}$ B. $\sqrt{64} - \sqrt{16}$

C. $3\sqrt{64}$ D. $\frac{\sqrt{256}}{4}$

BONUS

Lin says that $\sqrt{9 + 16}$ $= \sqrt{9} + \sqrt{16}$. Is she right? Explain your answer.

MATH TIP

A square root is a divisor of a number that, when multiplied by itself, equals the original number.

77

Name _____ Date _____

1.77 Positive and Negative Numbers

1. Write the integer that represents each of the following.

A. 700 feet above sea level

B. 5° below zero

C. losing $10

D. finding $5

E. 10 seconds in the countdown before the launch of a rocket

F. 300 feet below sea level

2. Locate the numbers below on the following number line.

```
◄——+————+————+————+————+————+————+——►
   −3    −2    −1    0     1     2     3
```
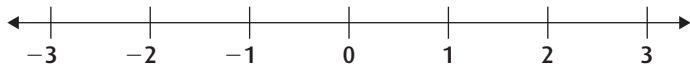
A. 1   B. ⁻2   C. 3   D. 2   E. ⁻3   F. 0

3. Compare the following integers. Use <, >, or =.

A. ⁻7 _____ 6   B. 3 _____ ⁻8

C. 0 _____ ⁻4   D. ⁻2 _____ 2

BONUS

Jeremy is a running back on his school's football team. In his last game he ran the ball three times. The first time he lost 4 yards. The second time he gained 9 yards. The third time he lost 2 yards. Did he gain or lose yards that game? How many?

MATH TIP

Integers are the set of positive and negative whole numbers and zero. The integer 0 is neither positive nor negative.

(1.78) Addition and Subtraction of Integers

1. Find the sum for each of the following problems.

A. $8 + {}^-12$

B. ${}^-9 + {}^-9$

C. ${}^-17 + {}^-25$

D. ${}^-46 + 68$

2. Find the difference for each of the following problems.

A. $7 - {}^-4$

B. $17 - {}^-8$

C. ${}^-36 - {}^-24$

D. ${}^-21 - {}^-21$

3. Solve each of the following problems.

A. $({}^-3 + {}^-5) - 2$

B. ${}^-4 - ({}^-6 + 3)$

C. $({}^-3 + 8) + (7 - {}^-2)$

D. ${}^-8 + ({}^-3 - {}^-7)$

BONUS

One of the lowest temperatures ever recorded in the United States was −80°F at Prospect Creek, Alaska, in 1971. One of the highest temperatures recorded in the country was 134°F at Death Valley, California, in 1913. What is the difference in degrees between these two temperatures?

MATH TRIVIA

Negative numbers were used in India as early as the sixth century to represent debts.

Name _____ Date _____

(1.79) Multiplication and Division of Integers

1. Find the product for the following problems.

  A. $^-5 \times {}^-80$

  B. $^-72 \times 24$

  C. $^-438 \times {}^-45$

  D. $674 \times {}^-82$

2. Find the quotient for the following problems.

  A. $^-84 \div 6$

  B. $^-539 \div {}^-7$

  C. $^-2{,}890 \div {}^-34$

  D. $1{,}168 \div {}^-73$

3. Solve the following problems.

  A. $(^-14 \div 2) \times (^-21 \times {}^-3)$

  B. $(^-64 \div 4) \div (^-2 \times {}^-8)$

  C. $^-3 \times (4 \times {}^-2) \div {}^-12$

  D. $^-1 \times (^-4 \times 4) \times (^-8 \div {}^-4)$

BONUS

Complete the following equation.

$(^-20 \div \underline{\quad}) \times (\underline{\quad} \div {}^-7) = {}^-20$

MATH TIP

The product or quotient of two integers with the same signs is a positive number. The product or quotient of two integers with different signs is a negative number.