

**RETEACH MATH WORK**  
**(BLUE PAGES TO SUPPLEMENT**  
**GREEN PAGES)**

Name \_\_\_\_\_

# Place Value

Place-value chart:

Billions period			Millions period			Thousands period			Ones period		
hundred billions	ten billions	billions	hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
		6	3	9	2	5	8	0	1	0	1

Expanded form:  $6,000,000,000 + 300,000,000 + 90,000,000 + 2,000,000 + 500,000 + 80,000 + 100 + 1$

Standard form: 6,392,580,101

Word form: six billion, three hundred ninety-two million, five hundred eighty thousand, one hundred one

Write the word name for each number and tell the value of the underlined digit.

1. 3,552,308,725

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2. 843,208,732,833

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3. Write  $2,000,000,000 + 70,000,000 + 100,000 + 70,000 + 3,000 + 800 + 10$  in standard form.

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4. **Number Sense** What number is 100,000,000 more than 5,438,724,022?

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Name \_\_\_\_\_

# Comparing and Ordering Whole Numbers

Order these numbers from least to greatest:

4,752,213 5,829,302 4,234,295 4,333,209.

**Step 1: Write the numbers, lining up places. Begin at the left to find the greatest or least number.**

4,752,213  
5,829,302  
4,234,295  
4,333,209

5,829,302 is the greatest.

**Step 2: Write the remaining numbers, lining up places. Find the greatest and least of these.**

4,752,213 ← greatest  
4,234,295 ← least  
4,333,209

4,752,213 is the greatest of these.  
4,234,295 is the least.

**Step 3: Write the numbers from least to greatest.**

4,234,295  
4,333,209  
4,752,213  
5,829,302

Reteaching 1-2

Complete. Write  $>$ ,  $<$ , or  $=$  in each  $\bigcirc$ .

1. 7,642  $\bigcirc$  7,843

2. 2,858,534  $\bigcirc$  2,882,201

Order these numbers from least to greatest.

3. 768,265 769,205 739,802

\_\_\_\_\_

\_\_\_\_\_

4. Write the areas of each country in order from greatest to least.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Country	Area in Square Kilometers
Albania	28,748
Burundi	27,830
Solomon Islands	28,450
Haiti	27,750

Name \_\_\_\_\_

# Decimal Place Value

Here are different ways to represent 2.753149.

**Place-value chart:**

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths
2	7	5	3	1	4	9

**Expanded Form:**

$$2 + 0.7 + 0.05 + 0.003 + 0.0001 + 0.00004 + 0.000009$$

**Standard form:** 2.753149

**Word Form:** Two and seven hundred fifty-three thousand one hundred forty-nine millionths

Complete the place-value chart for the following number. Write its word form and tell the value of the underlined digit.

1. 6.324657

Ones	Tenths	Hundredths	Thousandths	Ten-thousandths	Hundred-thousandths	Millionths

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Write each number in standard form.

2.  $5 + 0.1 + 0.03 + 0.006 + 0.0007 + 0.00002 + 0.000004$

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3. Two and seven hundred twenty-four thousand three hundred sixty-five millionths

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Name \_\_\_\_\_

# Comparing and Ordering Decimals

List the numbers in order from least to greatest:

6.943, 5.229, 6.825, 6.852, 6.779

**Step 1: Write the numbers, lining up places. Begin at the left to find the greatest or least number.**

6.943  
5.229  
6.825  
6.852  
6.779

5.229 is the least.

**Step 2: Write the remaining numbers, lining up places. Find the greatest and least. Order the other numbers.**

6.943 ← greatest  
6.825 } → 6.825  
6.852 } → 6.852  
6.779 ← least

6.779 is the least.  
6.943 is the greatest.  
6.852 is greater than 6.825.

**Step 3: Write the numbers from least to greatest.**

5.229  
6.779  
6.825  
6.852  
6.943

Complete. Write  $>$ ,  $<$ , or  $=$  for each  $\bigcirc$ .

1. 7.539  $\bigcirc$  7.344      2. 9.202  $\bigcirc$  9.209      3. 0.75  $\bigcirc$  0.750

Order these numbers from least to greatest.

4. 3.898   3.827   3.779

\_\_\_\_\_

5. 5.234   5.199   5.002   5.243

\_\_\_\_\_

Which had the faster speed?

6. Driver A or Driver D

\_\_\_\_\_

7. Driver C or Driver A

\_\_\_\_\_

**Car Racing Winners**

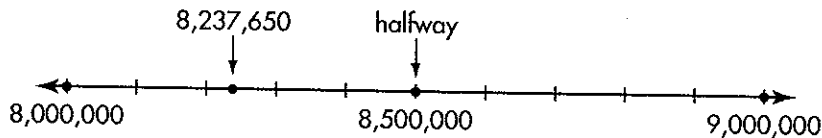
Driver	Average Speed (mph)
Driver A	145.155
Driver B	145.827
Driver C	147.956
Driver D	144.809

Name \_\_\_\_\_

Reteaching  
**2-2**

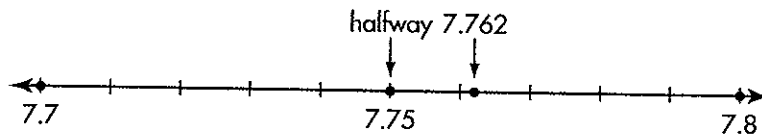
# Rounding Whole Numbers and Decimals

You can use the number line below to help you round 8,237,650 to the nearest million. Is 8,237,650 closer to 8,000,000 or 9,000,000?



8,237,650 is less than halfway to 9,000,000. 8,237,650 is closer to 8,000,000.

The number line can also help you round 7.762 to the nearest tenth. Is 7.762 closer to 7.7 or 7.8?



7.762 is more than halfway to 7.8. 7.762 is closer to 7.8.

Round each number to the place of the underlined digit.

1. 4,725,806

2. 7.049

3. 165,023,912

4. 18.692

5. Round the number of connected computers in Year 2 to the nearest ten million.

**Number of Computers  
Connected to the Internet**

Year 1	30,979,376
Year 2	42,199,279
Year 3	63,592,854

6. **Number Sense** Marc earned \$9.37 per hour working at the library. Round his wage to the nearest ten cents.

Name \_\_\_\_\_

# Estimating Sums and Differences

During one week, Mr. Graham drove a truck to five different towns to make deliveries. Estimate how far he drove in all.

**Mr. Graham's Mileage Log**

Cities	Mileage
Mansley to Mt. Hazel	243
Mt. Hazel to Perkins	303
Perkins to Alberton	279
Alberton to Fort Maynard	277
Fort Maynard to Mansley	352

To estimate the sum, you can round each number to the nearest hundred miles.

$$\begin{array}{r}
 243 \Rightarrow 200 \\
 303 \Rightarrow 300 \\
 279 \Rightarrow 300 \\
 277 \Rightarrow 300 \\
 +352 \Rightarrow +400 \\
 \hline
 1,500 \text{ mi}
 \end{array}$$

Mr. Graham drove about 1,500 mi.

You can estimate differences in a similar way.

Estimate  $7.25 - 4.98$ .

You can round each number to the nearest whole number.

$$\begin{array}{r}
 7.25 \Rightarrow 7 \\
 -4.98 \Rightarrow -5 \\
 \hline
 2
 \end{array}$$

The difference is about 2.

Estimate each sum or difference.

1.  $19.7 - 6.9$

\_\_\_\_\_

2.  $59 + 43 + 95$

\_\_\_\_\_

3.  $582 + 169 + 23$

\_\_\_\_\_

4.  $87.99 - 52.46$

\_\_\_\_\_

5. **Estimation** Brigid worked 16.75 h. Kevin worked 12.50 h. About how many more hours did Brigid work than Kevin?

\_\_\_\_\_

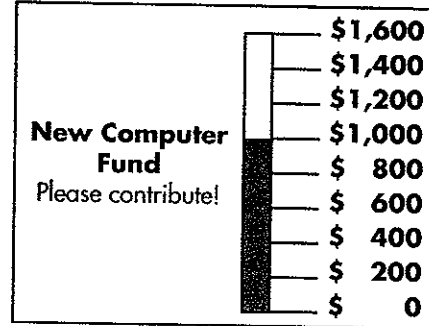
Name \_\_\_\_\_

Reteaching

2-4

## Problem Solving: Draw a Picture and Write an Equation

A community center is raising funds to buy a computer. Here is a picture of the sign they put outside the center. How much more money must the center raise?



How to write an equation number sentence for a problem:

### One Way

The goal is \$1,600.

So far, \$1,000 has been raised.

The amount yet to be raised is the unknown.

Think: The amount raised so far and the amount yet to be raised will reach the goal.

Write an equation.

$$1,000 + x = 1,600$$

Think: What number added to 1,000 will result in 1,600?

$$1,000 + 600 = 1,600$$

The amount yet to be raised is \$600.

### Another Way

The goal is \$1,600.

So far, \$1,000 has been raised.

The amount yet to be raised is the unknown.

Think: The difference between the goal and what has been raised so far is the amount yet to be raised.

Write an equation.

$$1,600 - 1,000 = x$$

Think: What number will result if 1,000 is subtracted from 1,600?

$$1,600 - 1,000 = 600$$

The amount yet to be raised is \$600.

A mason needs 22 bricks to make a stoop. So far he has carried 15 to the site. How many more bricks must he carry?

Draw a picture. Write an equation. Write a number sentence. Solve.

\_\_\_\_\_

Name \_\_\_\_\_

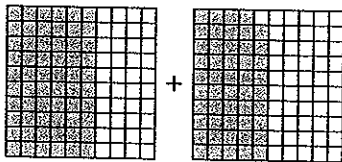
# Adding Decimals

In February, Chantell ran a 5K race in 0.6 hour. She ran another 5K race in May in 0.49 hour. What was her combined time for the two races?

**Step 1:** Write the numbers, lining up the decimal points. Include the zeros to show place value.

$$\begin{array}{r} 0.60 \\ + 0.49 \\ \hline \end{array}$$

You can use decimal squares to represent this addition problem.



**Step 2:** Add the hundredths.

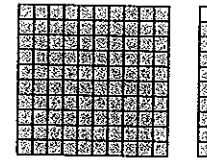
$$\begin{array}{r} 0.60 \\ + 0.49 \\ \hline 9 \end{array}$$



**Step 3:** Add the tenths.

Remember to write the decimal point in your answer.

$$\begin{array}{r} 1 \\ 0.60 \\ + 0.49 \\ \hline 1.09 \end{array}$$



Chantell's combined time for the two races was 1.09 hours.

Add.

1.  $2.97 + 0.35 =$  \_\_\_\_\_
2.  $13.88 + 7.694 =$  \_\_\_\_\_
3.  $39.488 + 26.7 =$  \_\_\_\_\_
4.  $88.8 + 4.277 + 78.95 =$  \_\_\_\_\_
5. **Number Sense** Is 16.7 a reasonable sum for  $7.5 + 9.2$ ? Explain.  
\_\_\_\_\_  
\_\_\_\_\_

6. How much combined snowfall was there in Milwaukee and Oklahoma City?  
\_\_\_\_\_

City	Snowfall (inches) in 2000
Milwaukee, WI	87.8
Baltimore, MD	27.2
Oklahoma City, OK	17.3

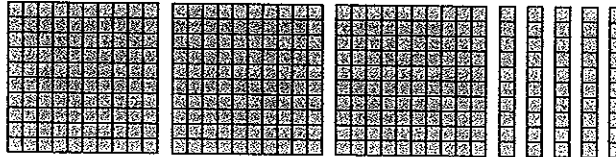
Name \_\_\_\_\_

# Subtracting Decimals

Mr. Montoya bought 3.5 lb of ground beef. He used 2.38 lb to make hamburgers. How much ground beef does he have left?

**Step 1:** Write the numbers, lining up the decimal points. Include the zeros to show place value.

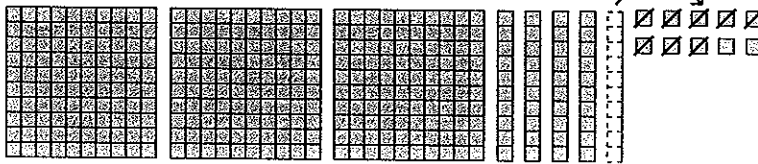
$$\begin{array}{r} 3.50 \\ -2.38 \\ \hline \end{array}$$



You can use decimal squares to represent this subtraction problem.

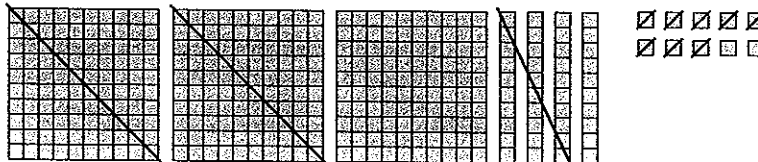
**Step 2:** Subtract the hundredths. Regroup if you need to.

$$\begin{array}{r} 4 \text{ } 10 \\ 3.50 \\ -2.38 \\ \hline 2 \end{array}$$



**Step 3:** Subtract the tenths and the ones. Remember to write the decimal point in your answer.

$$\begin{array}{r} 4 \text{ } 10 \\ 3.50 \\ -2.38 \\ \hline 1.12 \end{array}$$



Mr. Montoya has 1.12 lb of ground beef left over.

Subtract.

1. 
$$\begin{array}{r} 82.7 \\ -5.59 \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 43.3 \\ -12.82 \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 7.28 \\ -4.928 \\ \hline \end{array}$$

Name \_\_\_\_\_

Reteaching

2-8

## Problem Solving: Multiple-Step Problems

Kim has a \$10 bill, a \$20 bill, and 2 \$5 gift certificates. She uses the gift certificates toward the purchase of a CD for \$14.00. How much money does Kim have left after buying the CD?

### Read and Understand

What do you know?

Kim has a ten-dollar bill, a twenty-dollar bill, and two five-dollar gift certificates.

She uses the 2 certificates toward the purchase of a CD that costs \$14.00.

What are you trying to find?

How much money does Kim have left after she buys the CD?

### Plan and Solve

Answer these hidden questions.

How much money does Kim have?

$$\$20.00 + \$10.00 = \$30.00$$

How much are the two certificates worth?

$$\$5.00 + \$5.00 = \$10.00$$

How much cash will Kim need to buy the CD?

$$\$14.00 - \$10.00 = \$4.00$$

Solve the problem.

$$\begin{aligned} \text{Money} - \text{cash paid for CD} &= \text{Money left} \\ \$30.00 - \$4.00 &= \$26.00 \end{aligned}$$

Write the answer in a complete sentence.

Kim has \$26 left after buying the CD.

### Look Back and Check

Is your answer correct?

$$\text{Yes, } \$4.00 + \$26.00 = \$30.00$$

1. You can also find how much money Kim has left by completing the following expression.

$$\$10.00 + \$20.00 + \$5.00 + \$5.00 - \underline{\hspace{2cm}}$$

Name \_\_\_\_\_

Reteaching  
3-5

# Multiplying 2-Digit by 2-Digit Numbers

Find  $43 \times 26$ .

**Step 1:**

Multiply by the ones.  
Regroup if necessary.

**What You Think**

$6 \times 3$  ones = 18 ones  
Regroup 18 ones as 1 ten  
and 8 ones.

$6 \times 4$  tens = 24 tens  
24 tens + 1 ten = 25 tens  
Regroup 25 tens as 2 hundreds  
and 5 tens.

**What You Write**

$$\begin{array}{r} 1 \\ 43 \\ \times 26 \\ \hline 258 \end{array}$$

**Step 2:**

Multiply by the tens.  
Regroup if necessary.

**What You Think**

$20 \times 3$  ones = 60 ones  
Regroup 60 ones as 6 tens.

$20 \times 4$  tens = 80 tens  
Regroup 80 tens as 8 hundreds.

$$\begin{array}{r} 1 \\ 43 \\ \times 26 \\ \hline 258 \\ 860 \\ \hline \end{array}$$

**Step 3:**

Add the partial products.

**What You Think**

$6 \times 43 = 258$   
 $20 \times 43 = 860$

$$\begin{array}{r} 1 \\ 43 \\ \times 26 \\ \hline 258 \\ + 860 \\ \hline 1,118 \end{array}$$

← partial products

Reteaching 3-5

Find the product.

1.  $\begin{array}{r} 38 \\ \times 12 \\ \hline \end{array}$

2.  $\begin{array}{r} 64 \\ \times 33 \\ \hline \end{array}$

3.  $\begin{array}{r} 49 \\ \times 27 \\ \hline \end{array}$

4.  $\begin{array}{r} 85 \\ \times 15 \\ \hline \end{array}$

5.  $\begin{array}{r} 26 \\ \times 21 \\ \hline \end{array}$

6.  $\begin{array}{r} 73 \\ \times 19 \\ \hline \end{array}$

7.  $\begin{array}{r} 57 \\ \times 28 \\ \hline \end{array}$

8.  $\begin{array}{r} 91 \\ \times 86 \\ \hline \end{array}$

9. **Number Sense** In the problem  $62 \times 45$ , what are the partial products?

\_\_\_\_\_

# Exponents

You can use exponential notation to write a number that is being multiplied by itself.

There are two parts in exponential notation. The **base** tells you what factor is being multiplied. The **exponent** tells you how many of that factor should be multiplied together. The exponent is *not* a factor.

exponent



$8^2 = 8 \times 8$  The base is 8, so 8 is the factor to be multiplied.



The exponent is 2, so 2 factors of 8 should be multiplied together.

base

You can write  $8^2$  in two other forms.

In **expanded** form, you write out your factors. Since  $8^2$  means you multiply two factors of 8,  $8^2$  in expanded form is  $8 \times 8$ .

In **standard** form, you write down the product of the factors. Since  $8 \times 8 = 64$ , 64 is the standard form of  $8^2$ .

Write in exponential notation.

1.  $2 \times 2 \times 2$  \_\_\_\_\_

2.  $6 \times 6 \times 6 \times 6 \times 6$  \_\_\_\_\_

Write in expanded form.

3.  $1^4$  \_\_\_\_\_

4.  $5^3$  \_\_\_\_\_

Write in standard form.

5.  $2 \times 2 \times 2 \times 2$  \_\_\_\_\_

6.  $8^3$  \_\_\_\_\_

7. A used car lot has 9 lanes for cars and 9 rows for cars in each lane. What is the exponential notation for the number of spaces on the lot? Can the owner fit 79 cars on the lot?
- \_\_\_\_\_

Name \_\_\_\_\_

# Dividing by 1-Digit Divisors

Find  $362 \div 5$ .

**Step 1:** To decide where to place the first digit in the quotient, compare the first digit of the dividend with the divisor.

$3 < 5$ , so the first digit in the quotient will not go in the hundreds place.

Now, compare the first two digits of the dividend with the divisor.

$36 > 5$ , so the first digit in the quotient will go in the tens place.

**Step 2:** Divide the tens. Use multiplication facts and compatible numbers.

Think  $5 \times ? = 35$ .

Write 7 in the tens place of the quotient.

Multiply.  $5 \times 7 = 35$

$$\begin{array}{r} 7 \\ 5 \overline{)36} \\ \underline{-35} \\ 1 \end{array}$$

Subtract.  $36 - 35 = 1$

Compare.  $1 < 5$

Bring down the ones.

**Step 3:** Divide the ones. Use multiplication facts and compatible numbers.

Think  $5 \times ? = 10$ .

Write 2 in the ones place of the quotient.

Multiply.  $5 \times 2 = 10$

$$\begin{array}{r} 7 \text{ R}2 \\ 5 \overline{)362} \\ \underline{-35} \downarrow \\ 12 \\ \underline{-10} \\ 2 \end{array}$$

Subtract.  $12 - 10 = 2$

Compare.  $2 < 5$

There are no more digits to bring down, so 2 is the remainder.

**Step 4:** Check by multiplying.

$$5 \times 72 = 360 + 2 = 362$$

Divide. Check by multiplying.

1.  $8 \overline{)863}$

2.  $7 \overline{)249}$

3.  $5 \overline{)365}$

4.  $8 \overline{)448}$

5.  $2 \overline{)499}$

6.  $6 \overline{)396}$

7. **Number Sense** How can you tell before you divide 425 by 9 that the first digit of the quotient is in the tens place?

# Zeros in the Quotient

Find  $816 \div 4$ .

**Step 1:** Compare the first digit of the dividend with the divisor.  $8 > 4$ , so the first digit in the quotient will go in the hundreds place.

Divide the hundreds.  
Think  $4 \times ? = 8$ .

Write 2 in the hundreds place of the quotient.  
Multiply.  $4 \times 2 = 8$

$$\begin{array}{r} 2 \\ 4 \overline{)81} \\ \underline{-8} \downarrow \\ 01 \end{array}$$

Subtract.  $8 - 8 = 0$

Compare.  $0 < 4$

Bring down the tens.

**Step 2:** Compare.

$$1 < 4$$

You cannot divide the tens, so place 0 in the tens place of the quotient.

Bring down the ones.

$$\begin{array}{r} 20 \\ 4 \overline{)816} \\ \underline{-8} \downarrow \\ 016 \end{array}$$

**Step 3:** Compare.

$$16 > 4$$

Divide the ones. Think  $4 \times ? = 16$ .

Write 4 in the ones place of the quotient.

Multiply.  $4 \times 4 = 16$

Subtract.  $16 - 16 = 0$

Compare.  $0 < 4$

There are no more digits to bring down, so the problem is done.

$$\begin{array}{r} 204 \\ 4 \overline{)816} \\ \underline{-8} \\ 016 \\ \underline{-16} \\ 0 \end{array}$$

Find each quotient. Check your answers by multiplying.

1.  $8 \overline{)640}$

2.  $3 \overline{)322}$

3.  $4 \overline{)908}$

4.  $15 \overline{)225}$

5.  $6 \overline{)624}$

6.  $6 \overline{)965}$

7. **Explain It** Is  $593 \div 6$  a little less than 10, a little more than 10, a little less than 100, or a little more than 100? Explain.

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Name \_\_\_\_\_

# Understanding Factors

You can use the divisibility rules to find the factors of a number.

What are the factors of 92?

Possible Factor	Test of Divisibility	Result of Test	Factors Found
1	Is 92 a whole number?	Yes. Therefore it is divisible by 1.	$92 \div 1 = 92$ 1 and 92 are factors.
2	Is 92 an even number?	Yes. Therefore it is divisible by 2.	$92 \div 2 = 46$ 2 and 46 are factors.
3	Is the sum of the digits divisible by 3?	No. Therefore it is not divisible by 3.	3 is not a factor.
4	Are the last 2 digits divisible by 4?	Yes. Therefore it is divisible by 4.	$92 \div 4 = 23$ 4 and 23 are factors.
5	Is the last digit 5 or 0?	No. Therefore it is not divisible by 5.	5 is not a factor.
6	Is it divisible by both 2 and 3?	No. Therefore it is not divisible by 6.	6 is not a factor.
9	Is the sum of the digits divisible by 9?	No. Therefore it is not divisible by 9.	9 is not a factor.
10	Is the last digit 0?	No. Therefore it is not divisible by 10.	10 is not a factor.

The factors of 92 are 1, 2, 4, 23, 46, and 92.

Find all the factors of each number.

1. 12 \_\_\_\_\_                      2. 35 \_\_\_\_\_  
3. 45 \_\_\_\_\_                      4. 49 \_\_\_\_\_

5. **Number Sense** Is 2,340 divisible by 90? How do you know?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

## Problem Solving: Multiple-Step Problems

Faye is putting together packets of colored beads to give as gifts. The chart shows the beads she had on hand yesterday. This morning she bought 4 boxes of yellow beads containing 45 beads each. How many packets of 60 beads can she put together?

Trinket Beads	
Color	Number
Red	195
Blue	170
Green	175

Find the hidden question or questions.

- How many yellow beads are there?      1.  $45 \times 4 = 180$
- How many beads are there in all?      2.  $195 + 170 + 175 + 180 = 720$

Solve.

$$720 \div 60 = 12$$

Write the answer in a sentence.

Faye will make 12 packets.

### Look Back and Check

Is the answer reasonable?

Yes. Since  $60 \times 10 = 600$ , the answer is reasonable.

- Faye decides to double the number of yellow beads in the mix. How many packets will she make if she fills each packet with 60 beads? \_\_\_\_\_
- Explain It** Faye plans to fill packets with 60 beads after deciding not to add any yellow beads to the mix. What hidden question or questions would you have to ask? Explain.  
\_\_\_\_\_  
\_\_\_\_\_

Name \_\_\_\_\_

Reteaching  
**5-5**

# 1-Digit Quotients

Find  $436 \div 53$ .

To find the answer, first estimate the quotient.

Think:  $400 \div 50 = 8$  or  $450 \div 50 = 9$

Try 9:

$$\begin{array}{r} 9 \\ 53 \overline{)436} \\ \underline{-477} \end{array}$$

Write 9 in the ones place.

Multiply,  $9 \times 53 = 477$ .

$477 > 436$ .

This estimate is too high.

Try 8:

$$\begin{array}{r} 8 \\ 53 \overline{)436} \\ \underline{-424} \\ 12 \end{array}$$

Write 8 in the ones place.

Multiply,  $8 \times 53 = 424$ .

Subtract,  $436 - 424 = 12$ .

Compare,  $12 < 53$ . Write the remainder in the quotient.

$$436 \div 53 = 8 \text{ R}12$$

Check:

$$8 \times 53 = 424$$

$$424 + 12 = 436$$

Complete.

1.  $32 \overline{)245} \text{ } 7 \text{ R}$

2.  $64 \overline{)332} \text{ } \text{R}12$

3.  $51 \overline{)489} \text{ } \text{R}$

Divide. Check by multiplying.

4.  $49 \overline{)216}$

5.  $79 \overline{)698}$

6.  $25 \overline{)194}$

7. **Explain It** Explain how you know the answer to the problem below has an error.

$$\begin{array}{r} 2 \text{ R}86 \\ 77 \overline{)240} \\ \underline{-154} \\ 86 \end{array}$$

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## 2-Digit Quotients

Find  $866 \div 34$ .

**Step 1:** Round the divisor to the nearest ten. Look at the first digit in the divisor and the first digit in the dividend. What basic division fact is the best estimate of the quotient of these two numbers?

$$34 \overline{)866} \quad \longrightarrow \quad 30 \overline{)866}$$

$$8 \div 3 = 2 \text{ R}2$$

**Step 2:** Use this fact to begin the quotient. Write it over the tens place.

$$\begin{array}{r} 2 \\ 34 \overline{)866} \\ \underline{-68} \phantom{0} \\ 186 \end{array}$$

Multiply,  $2 \times 34 = 68$ .

Subtract and bring down the next digit in the dividend.

**Step 3:** What basic division fact is the best estimate of the next division? Use this fact and write it over the ones place.

$$\begin{array}{r} 25 \text{ R}16 \\ 34 \overline{)866} \\ \underline{-68} \phantom{0} \\ 186 \\ \underline{-170} \\ 16 \end{array}$$

Multiply,  $5 \times 34 = 170$ .

Subtract. Compare the remainder with the divisor.

If the remainder is less than the divisor, write it in the quotient.

Check.

$$25 \times 34 = 850$$

$$850 + 16 = 866$$

Complete.

1.  $39 \overline{)437}$   $11 \text{ R}$

2.  $24 \overline{)627}$    $\text{R}3$

3.  $26 \overline{)917}$    $\text{R}$

Divide. Check by multiplying.

4.  $13 \overline{)175}$

5.  $44 \overline{)508}$

6. **Estimation** April has 95 baseball cards. She wants to organize them on pages that hold 18 cards each. She has 5 pages. Does April have enough pages to organize all her cards?

# Variables and Expressions

A **variable** is a letter or symbol. It represents an unknown amount that can change.

You can do mathematical operations with variables and numbers.

You can state these operations in word expressions. You can also state them in algebraic expressions.

Operation	+	-	×	÷
Word expression	the sum of $r$ and 3	the difference between $r$ and 3	the product of $r$ and 3	the quotient of $r$ and 3
Algebraic expression	$r + 3$	$r - 3$	$3r$	$r \div 3$
Other ways of saying the word expression	3 added to $r$ 3 more than $r$	3 subtracted from $r$ 3 less than $r$	$r$ multiplied by 3 3 times $r$	$r$ divided by 3 3 equal parts of $r$

Complete the algebraic expression for each of the following word expressions.

- the sum of  $b$  and 8  
 $b$  \_\_\_ 8
- the difference between  $m$  and 6  
 $m$  \_\_\_ 6
- the quotient of  $k$  and 16  
 $k$  \_\_\_ 16
- 7 less than  $z$   
 $z$  \_\_\_ 7
- 2 more than  $d$   
 $d$  \_\_\_ 2
- $j$  divided by 4  
 $j$  \_\_\_ 4

Circle the letter of the correct word expression for each algebraic expression.

- $t - 13$ 
  - 13 subtracted from  $t$
  - $t$  subtracted from 13
- $4n$ 
  - 4 more than  $n$
  - 4 times  $n$
- $11 + s$ 
  - 11 more than  $s$
  - 11 less than  $s$
- $45a$ 
  - the product of  $a$  and 45
  - 45 more than  $a$
- $y \div 6$ 
  - $y$  less 6
  - 6 equal parts of  $y$
- $v - 5$ 
  - 5 less than  $v$
  - $v$  subtracted from 5

Name \_\_\_\_\_

Reteaching

**7-2**

# Multiplying a Decimal by a Whole Number

Travis can read a book chapter in 2.6 hours. The book has 18 chapters. How long will it take Travis to read the book?

Step 1. Multiply as with whole numbers.

$$\begin{array}{r} 2.6 \\ \times 18 \\ \hline 208 \\ + 260 \\ \hline 468 \end{array}$$

Step 2. Count the total decimal places in both factors.

2.6 1 decimal place  
18 0 decimal places

Step 3. Since there is a total of 1 decimal place in the factors, there is 1 decimal place in the product.

46.8  
↓

It will take Travis 46.8 hours to read the book.

For questions 1 through 3, find the product.

1.  $\begin{array}{r} 2.3 \\ \times 6 \\ \hline \end{array}$

2.  $\begin{array}{r} 71.7 \\ \times 12 \\ \hline \end{array}$

3.  $\begin{array}{r} 0.894 \\ \times 21 \\ \hline \end{array}$

4. Sara is multiplying two factors, one with one decimal place and one with two decimal places. She says that the product should have two decimal places. Is this correct? Explain.

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5. **Critical Thinking** Light bulbs usually cost \$2. They are on sale for 0.50 of the regular price. What is the sale price? Is this a better price than if the sale price were 0.35 of the regular price?

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Reteaching 7-2

Name \_\_\_\_\_

## Multiplying Two Decimals

Caroline earns \$2.40 per hour for babysitting her brother. She babysat last night for 3.25 hours. How much did she earn?

First, estimate your product so you can check for reasonableness.

$$\$2.40 \times 3.25$$



$$\$2 \times 3 = 6 \quad \text{Caroline earned about } \$6.00.$$

**Step 1:** Multiply as with whole numbers.

$$\begin{array}{r} 3.25 \\ \times 2.40 \\ \hline 000 \\ 13,000 \\ +65,000 \\ \hline 78,000 \end{array}$$

**Step 2:** Count the total number of decimal places in both factors.

3.25   2 decimal places

2.40   2 decimal places

So, 4 decimal places total.

**Step 3:** Place the decimal point in the product with the correct total number of decimal places following it.

$$7.8000 = \$7.80$$

Caroline earned \$7.80 last night. Because \$7.80 is close to your estimate of \$6, your answer is reasonable.

Find each product. Check by estimating.

1.  $0.2 \times 4.6$  \_\_\_\_\_    2.  $3.98 \times 7.1$  \_\_\_\_\_    3.  $8.54 \times 0.14$  \_\_\_\_\_

4.  $0.532 \times 6.4$  \_\_\_\_\_    5.  $9.3 \times 5.86$  \_\_\_\_\_    6.  $0.37 \times 4.4$  \_\_\_\_\_

7. **Critical Thinking** Jackie wants to buy a new CD player. It costs \$32.95. She has saved \$26 and has a coupon for 30% off the price. Does Jackie have enough money to buy the CD player?

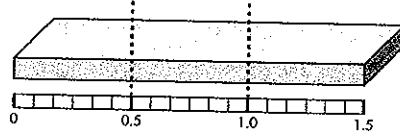
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# Dividing a Decimal by a Whole Number

Jia needs to cut a board into 3 equal pieces to make bookshelves. The board is 1.5 yd long. How long will each bookshelf be?



Laying a measuring tape next to the board, Jia sees that her board can be cut into 3 pieces that are each 0.5 yd long. Jia also writes out her problem to make sure her answer is correct.

**Step 1.** Write a decimal point in the quotient directly above the decimal point in the dividend.

**Step 2.** Divide as you would with whole numbers.

$$\begin{array}{r} 0.5 \\ 3 \overline{)1.5} \\ \underline{-15} \\ 0 \end{array}$$

Sometimes you will need to add a zero to the right of the dividend so that you can continue dividing. Example:  
 $8.1 \div 18$

$$\begin{array}{r} 0.45 \\ 18 \overline{)8.10} \\ \underline{-72} \\ 90 \\ \underline{-90} \\ 0 \end{array}$$

**Step 3.** Check your quotient by multiplying.

$$0.5 \times 3 = 1.5$$

Since the quotient matches the measurement that Jia saw on her measuring tape, she knows that her answer is correct.

For 1 through 6, find each quotient. Check by multiplying.

1.  $14 \overline{)6.3}$

2.  $77 \overline{)2.31}$

3.  $89 \overline{)2.492}$

4.  $123.08 \div 34$

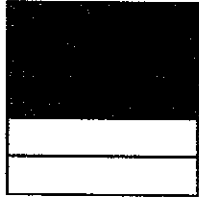
5.  $0.57 \div 30$

6.  $562.86 \div 59$

7. A family of five people attends a theme park. They purchase 2 adult tickets for \$27.50 each and 3 student tickets for \$12.50 each. If the 5 tickets are purchased with a \$100 bill, how much change do they receive? \_\_\_\_\_

# Equivalent Fractions

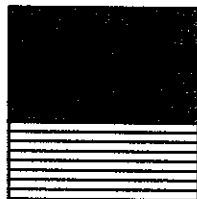
The fractions shown below are equivalent.  
They all describe the same part of a whole.



$$\frac{3}{5}$$



$$\frac{6}{10}$$



$$\frac{12}{20}$$

To find equivalent fractions, multiply or divide the numerator and denominator by the same number.

$$\frac{3}{5} \times \frac{2}{2} = \frac{6}{10}$$

$$\frac{6}{10} \times \frac{2}{2} = \frac{12}{20}$$

$$\frac{12}{20} \div \frac{2}{2} = \frac{6}{10}$$

$$\frac{6}{10} \div \frac{2}{2} = \frac{3}{5}$$

$$\frac{12}{20} \div \frac{4}{4} = \frac{3}{5}$$

Name two equivalent fractions for each fraction.

1.  $\frac{1}{3}$  \_\_\_\_\_

2.  $\frac{2}{12}$  \_\_\_\_\_

3.  $\frac{4}{20}$  \_\_\_\_\_

4.  $\frac{2}{16}$  \_\_\_\_\_

Find the missing number to make the fractions equivalent.

5.  $\frac{4}{7} = \frac{8}{\square}$

6.  $\frac{\square}{18} = \frac{4}{6}$

7.  $\frac{3}{4} = \frac{\square}{12}$

8.  $\frac{15}{\square} = \frac{3}{4}$

9. **Number Sense** Are  $\frac{3}{4}$  and  $\frac{12}{16}$  equivalent fractions? Explain.

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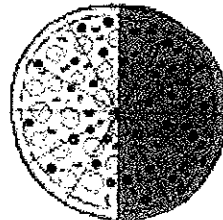


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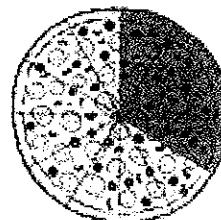
# Comparing and Ordering Fractions and Mixed Numbers

You can compare fractions by finding a common denominator.

Samantha and her brother Jacob went out for pizza. Samantha ate  $\frac{1}{2}$  of her pizza. Jacob ate  $\frac{4}{12}$  of his pizza. Who ate more pizza?



Samantha's Pizza



Jacob's pizza

Because these fractions have different denominators, you need to find a common denominator. Then you can compare them.

**Step 1.** Write multiples of the two denominators until you get a common multiple.

$$2: 2, 4, 6, 8, 10, \textcircled{12}$$

$$12: \textcircled{12}, 24, 36, 48, 60 \quad \text{Use 12 as the common denominator.}$$

**Step 2.** Since you multiply  $2 \times 6$  to get 12, you must multiply  $1 \times 6$ .

$$\frac{1}{2} = \frac{6}{12}$$

**Step 3.** Compare the fractions with common denominators.

$$\frac{6}{12} > \frac{4}{12} \quad \text{So, Samantha ate more pizza.}$$

Remember: If you don't know the multiples of the denominators, you can multiply the denominators together to get a common denominator.

Compare. Write  $>$ ,  $<$ , or  $=$  for each  $\bigcirc$ .

$$1. \frac{2}{3} \bigcirc \frac{1}{6}$$

$$2. \frac{3}{4} \bigcirc \frac{1}{2}$$

$$3. \frac{5}{6} \bigcirc \frac{21}{24}$$

Order the numbers from least to greatest.

$$4. \frac{4}{5}, \frac{3}{5}, \frac{3}{4} \quad \underline{\hspace{2cm}}, \underline{\hspace{2cm}}, \underline{\hspace{2cm}}$$

$$5. 1\frac{5}{6}, 1\frac{3}{6}, 1\frac{2}{12} \quad \underline{\hspace{2cm}}, \underline{\hspace{2cm}}, \underline{\hspace{2cm}}$$

6. **Geometry** Sofia baked three kinds of pie. Sofia's Mom told her to bring  $\frac{8}{16}$  of the apple pie,  $\frac{4}{8}$  of the pecan pie, and  $\frac{3}{6}$  of the pumpkin pie to school to share with her friends. Draw the pies and show which pie will have the greatest amount brought to school.

# Fractions in Simplest Form

There are two different ways to write a fraction in simplest form.

Write  $\frac{20}{24}$  in simplest form.

### Divide by Common Factors

- Divide by common factors until the only common factor is 1.
- You can start by dividing by 2, since both numbers are even.

$$\frac{20 \div 2}{24 \div 2} = \frac{10}{12}$$

But both 10 and 12 are also even, so they can be divided by 2.

$$\frac{10 \div 2}{12 \div 2} = \frac{5}{6}$$

- Since 5 and 6 do not have any common factors,  $\frac{5}{6}$  is the simplest form.

### Divide by the GCF

- First find the GCF of 20 and 24.  
20: 1, 2, 4, 5, 10, 20  
24: 1, 2, 3, 4, 6, 8, 12, 24
- The common factors of 20 and 24 are 1, 2, and 4. The GCF of 20 and 24 is 4.
- Divide both the numerator and the denominator by 4.

$$\frac{20 \div 4}{24 \div 4} = \frac{5}{6}$$

$\frac{20}{24}$  written in simplest form is  $\frac{5}{6}$ .

Write each fraction in simplest form.

1.  $\frac{16}{20}$  \_\_\_\_\_

2.  $\frac{8}{16}$  \_\_\_\_\_

3.  $\frac{5}{10}$  \_\_\_\_\_

4.  $\frac{8}{32}$  \_\_\_\_\_

5.  $\frac{18}{42}$  \_\_\_\_\_

6.  $\frac{15}{100}$  \_\_\_\_\_

7.  $\frac{18}{21}$  \_\_\_\_\_

8.  $\frac{24}{40}$  \_\_\_\_\_

9.  $\frac{55}{70}$  \_\_\_\_\_

10. **Number Sense** Explain how you can tell that  $\frac{31}{33}$  is in simplest form.

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# Thousandths

**Example 1:** Write 0.025 as a fraction.

Ones	.	Tenths	Hundredths	Thousandths
0	.	0	2	5

You can use a place-value chart to write a decimal as a fraction. Look at the place-value chart above. The place farthest to the right that contains a digit tells you the denominator of the fraction. In this case, it is thousandths. The number written in the place-value chart tells you the numerator of the fraction. Here, it is 25.

$$0.025 = \frac{25}{1,000}$$

**Example 2:** Write  $\frac{11}{1,000}$  as a decimal.

Ones	.	Tenths	Hundredths	Thousandths
	.			

You can also use a place-value chart to write a fraction as a decimal. The denominator tells you the last decimal place in your number. Here, it is thousandths. The numerator tells you the decimal itself. Write a 1 in the hundredths place and a 1 in the thousandths place. Fill in the other places with a 0.

$$\frac{11}{1,000} = 0.011$$

Write each decimal as a fraction.

1. 0.002

2. 0.037

3. 0.099

Write each fraction as a decimal.

4.  $\frac{5}{1,000}$  \_\_\_\_\_

5.  $\frac{76}{1,000}$  \_\_\_\_\_

6.  $\frac{40}{1,000}$  \_\_\_\_\_

7. **Explain It** Matt reasoned that he can write  $\frac{9}{1,000}$  as 0.9. Is he correct? Explain your answer.

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# Adding Fractions with Unlike Denominators

Danisha ate  $\frac{2}{3}$  cup of yogurt at breakfast. She ate  $\frac{1}{4}$  cup of yogurt at lunch. How much yogurt did she eat today?

You can add fractions with unlike denominators.

**Step 1:** Find the least common denominator of the two fractions.

multiples of 3: 3, 6, 9, **12**, 15

multiples of 4: 4, 8, **12**, 16, 20

$$\frac{2}{3} = \frac{8}{12} \text{ and } \frac{1}{4} = \frac{3}{12}$$

**Step 2:** Once you have equivalent fractions with the same denominator, add the numerators.

$$8 + 3 = 11$$

**Step 3:** Place the sum over the common denominator and simplify your fraction if possible.

Danisha ate  $\frac{11}{12}$  cup of yogurt today.

For questions 1 through 5, find the sum. Simplify if possible.

$$\begin{array}{r} 1. \quad \frac{4}{5} \\ + \frac{1}{2} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad \frac{8}{9} \\ + \frac{5}{6} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad \frac{4}{9} \\ + \frac{3}{4} \\ \hline \end{array}$$

$$4. \quad \frac{1}{2} + \frac{1}{6} + \frac{3}{4} = \underline{\hspace{2cm}} \quad 5. \quad \frac{2}{3} + \frac{1}{9} + \frac{5}{6} = \underline{\hspace{2cm}}$$

6. Kevin and some friends ordered several pizzas and cut them into different numbers of slices. Kevin ate  $\frac{1}{6}$  of one pizza,  $\frac{1}{4}$  of another,  $\frac{5}{12}$  of another, and  $\frac{1}{3}$  of another. Did Kevin eat the equivalent of a whole pizza?

\_\_\_\_\_

7. Cathy spent  $\frac{3}{10}$  of an hour on her math homework,  $\frac{2}{5}$  of an hour on her science homework, and  $\frac{3}{4}$  of an hour on her reading homework. How long did Cathy work on homework?

\_\_\_\_\_

# Subtracting Fractions with Unlike Denominators

You can subtract fractions with unlike denominators by using the least common multiple (LCM) and the least common denominator (LCD).

Beth wants to exercise for  $\frac{4}{5}$  hour. So far, she has exercised for  $\frac{2}{3}$  hour. What fraction of an hour does she have left to go?

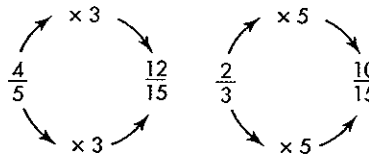
**Step 1:** Find the LCM of 5 and 3.

multiples of 5: 5, 10, **(15)**, 20

multiples of 3: 3, 6, 9, 12, **(15)**

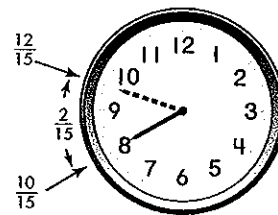
Since 15 is the LCM, it is also your LCD.

**Step 2:** Using your LCD, write the equivalent fractions.



**Step 3:** Subtract the numerators.

Place the difference over the LCD. Simplify if possible.



$$12 - 10 = 2 \quad \frac{2}{15} \text{ hour left}$$

Reteaching 10-4

In 1 through 5, find each difference. Simplify if possible.

1. 
$$\begin{array}{r} \frac{3}{4} \\ - \frac{2}{5} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} \frac{7}{10} \\ - \frac{1}{5} \\ \hline \end{array}$$

3.  $\frac{7}{12} - \frac{1}{4} =$  \_\_\_\_\_

4.  $\frac{5}{6} - \frac{3}{8} =$  \_\_\_\_\_

5.  $\frac{23}{24} - \frac{7}{8} =$  \_\_\_\_\_

6. Natasha had  $\frac{7}{8}$  gallon of paint. Her brother Ivan took  $\frac{1}{4}$  gallon to paint his model boat. Natasha needs at least  $\frac{1}{2}$  gallon to paint her bookshelf. Did Ivan leave her enough paint?

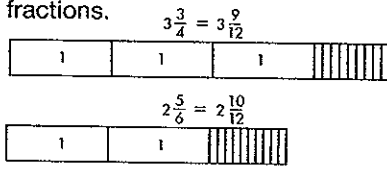
Name \_\_\_\_\_

Reteaching  
**10-5**

# Adding Mixed Numbers

Randy talks on the telephone for  $2\frac{5}{6}$  hours, and then surfs the Internet for  $3\frac{3}{4}$  hours. How many hours did he spend on the two activities?

**Step 1.** Write equivalent fractions with the least common denominator. You can use fraction strips to show the equivalent fractions.



**Step 2.** Add the fractions. Then add the whole numbers.

$$\frac{9}{12} + \frac{10}{12} = \frac{19}{12} \quad 3 + 2 = 5$$

So,  $3\frac{3}{4} + 2\frac{5}{6} = 5\frac{19}{12}$

**Step 3.** Simplify the sum if possible.

$$5\frac{19}{12} = 6\frac{7}{12} \text{ hours}$$

In 1 through 6, find each sum. Simplify if possible.

1. 
$$\begin{array}{r} 2\frac{5}{6} \\ + 3\frac{1}{4} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 1\frac{3}{8} \\ + 6\frac{3}{4} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 5\frac{2}{5} \\ + 4\frac{1}{2} \\ \hline \end{array}$$

4.  $10\frac{1}{3} + \frac{7}{9} =$  \_\_\_\_\_

5.  $3\frac{1}{4} + 6\frac{2}{3} =$  \_\_\_\_\_

6.  $1\frac{5}{7} + 3\frac{1}{2} =$  \_\_\_\_\_

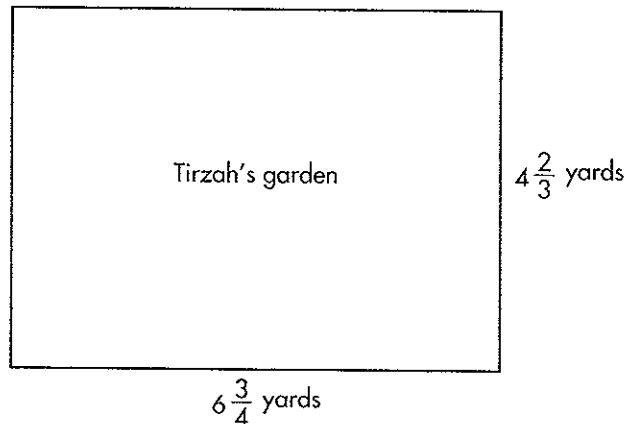
7. **Geometry** Tirzah wants to put a fence around her garden. She has 22 yards of fence material. Does she have enough to go all the way around the garden?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

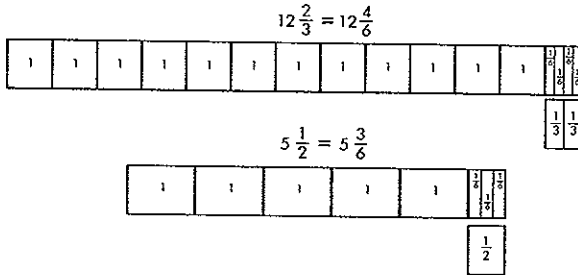


Name \_\_\_\_\_

# Subtracting Mixed Numbers

The Plainville Zoo has had elephants for  $12\frac{2}{3}$  years. The zoo has had zebras for  $5\frac{1}{2}$  years. How many years longer has the zoo had elephants?

**Step 1.** Write equivalent fractions with the least common denominator. You can use fraction strips.



**Step 2.** Subtract the fractions. Then subtract the whole numbers. Simplify the difference if possible.

$$\frac{4}{6} - \frac{3}{6} = \frac{1}{6}$$

$$12 - 5 = 7$$

So,  $12\frac{2}{3} - 5\frac{1}{2} = 7\frac{1}{6}$  years.

Tip: Sometimes you may have to rename a fraction so you can subtract.

$$\begin{array}{r}
 6 \longrightarrow \text{rename} \longrightarrow 5\frac{8}{8} \\
 - 2\frac{3}{8} \\
 \hline
 3\frac{5}{8}
 \end{array}$$

For questions 1 through 4, find the difference. Simplify if possible. Remember: You may have to rename a fraction in order to subtract.

1. 
$$\begin{array}{r} 4\frac{3}{5} \\ - 2\frac{1}{3} \\ \hline \end{array}$$

2. 
$$\begin{array}{r} 5\frac{6}{7} \\ - 1\frac{1}{2} \\ \hline \end{array}$$

3. 
$$\begin{array}{r} 3 \\ - 1\frac{3}{4} \\ \hline \end{array}$$

4. 
$$\begin{array}{r} 6\frac{5}{6} \\ - 5\frac{1}{2} \\ \hline \end{array}$$

5. **Number Sense** Rename the number 7 so that you would be able to find the difference of  $7 - 3\frac{5}{12}$ .

\_\_\_\_\_

6. Robyn ran  $5\frac{3}{4}$  miles last week. She ran  $4\frac{1}{10}$  miles this week. How many more miles did she run last week?

\_\_\_\_\_

Name \_\_\_\_\_

Reteaching

11-1

# Multiplying Fractions and Whole Numbers

You can find the product of a fraction and a whole number.

Tran needs  $\frac{2}{3}$  yard of fabric to sew a pair of shorts. How many yards of fabric will Tran need to sew 6 pairs of shorts?

**Step 1:** Multiply the numerator by the whole number.

$$2 \times 6 = 12$$

**Step 2:** Place the product over the denominator. Simplify if possible.

$$\frac{12}{3} = 4 \text{ yards of fabric}$$

Remember: In word problems, "of" means "multiply."

Example:  $\frac{3}{5}$  of 15 =  $\frac{3}{5} \times 15$

In 1 through 4, find each product. Simplify if possible.

1.  $\frac{1}{3} \times 60 =$  \_\_\_\_\_

2.  $\frac{3}{4}$  of 32 = \_\_\_\_\_

3.  $\frac{7}{8} \times 40 =$  \_\_\_\_\_

4.  $\frac{2}{7}$  of 35 = \_\_\_\_\_

For Exercises 5 through 7, use the table to the right.

5. What is  $\frac{1}{7}$  the speed of a cheetah? \_\_\_\_\_

6. What is  $\frac{1}{5}$  the speed of a cat? \_\_\_\_\_

7. What is  $\frac{1}{5}$  the speed of a jackal? \_\_\_\_\_

Animal	Speed (in mi/h)
Cat	30
Cheetah	70
Jackal	35

# Multiplying Mixed Numbers

You can find the product of two mixed numbers.

Millwood City is constructing a new highway through town. The construction crew can complete  $5\frac{3}{5}$  miles of road each month. How many miles will they complete in  $6\frac{1}{2}$  months?

**Step 1.** Round the mixed numbers to whole numbers so you can make an estimate.

$$5\frac{3}{5} \times 6\frac{1}{2}$$
$$6 \times 7 = 42$$

So, they can complete about 42 miles.

**Step 2.** Write the mixed numbers as improper fractions.

$$5\frac{3}{5} \times 6\frac{1}{2} = \frac{28}{5} \times \frac{13}{2}$$

**Step 3.** Multiply the numerators and the denominators. Simplify the product if possible. Remember to look for common factors.

$$\frac{\overset{14}{\cancel{28}}}{5} \times \frac{13}{\underset{1}{\cancel{2}}} = \frac{182}{5} = 36\frac{2}{5}$$

**Step 4.** Compare your product to your estimate to check for reasonableness.

$36\frac{2}{5}$  is close to 42, so this answer is reasonable.

The construction crew will complete  $36\frac{2}{5}$  miles of highway in  $6\frac{1}{2}$  months.

For 1 through 6, estimate a product. Then solve for each actual product. Simplify if possible.

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

4.  $1\frac{2}{5} \times 2\frac{1}{4} =$  \_\_\_\_\_      5.  $2\frac{1}{2} \times 10 =$  \_\_\_\_\_      6.  $1\frac{2}{3} \times \frac{1}{5} =$  \_\_\_\_\_

7. Using the example above, the new highway will be a total of 54 miles long. Will the highway be finished in 8 months?

\_\_\_\_\_

8. **Reasonableness** Sayed gave an answer of  $6\frac{6}{7}$  for the problem  $4\frac{2}{7} \times 1\frac{3}{5}$ . Using estimates, is this a reasonable answer?

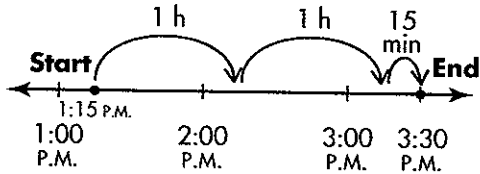
\_\_\_\_\_

# Elapsed Time

### How to find elapsed time:

Iris left her house at 1:15 P.M. and arrived at her grandparents' house at 3:30 P.M. How long did the trip take?

Use a number line to count up.



The trip took 2 h 15 min.

### How to use elapsed time to find when an event began or ended:

Omar and his brothers played floor hockey for 1 hour and 9 minutes. They finished playing at 6:30 P.M. At what time did they begin playing?

You can subtract to find the start time.

$$\text{End Time} - \text{Elapsed Time} = \text{Start Time}$$

$$\begin{array}{r} 6 \text{ h } 30 \text{ min} \\ - 1 \text{ h } 9 \text{ min} \\ \hline 5 \text{ h } 21 \text{ min} \end{array}$$

So, they began playing at 5:21 P.M.

Find each elapsed time.

1. 8:13 P.M. to 10:00 P.M.

\_\_\_\_\_

2. 1:24 P.M. to 4:47 P.M.

\_\_\_\_\_

3. 3:35 P.M. to 6:09 P.M.

\_\_\_\_\_

4. 9:55 P.M. to 11:42 P.M.

\_\_\_\_\_

Find each start time or end time using the given elapsed time.

5. Start: 5:49 A.M.  
Elapsed: 5 h 20 min

\_\_\_\_\_

6. End: 8:27 P.M.  
Elapsed: 4 h 13 min

\_\_\_\_\_

Add or subtract.

7. 
$$\begin{array}{r} 6 \text{ h } 31 \text{ min} \\ + 7 \text{ h } 16 \text{ min} \\ \hline \end{array}$$

8. 
$$\begin{array}{r} 7 \text{ h } 12 \text{ min} \\ - 3 \text{ h } 30 \text{ min} \\ \hline \end{array}$$

9. 
$$\begin{array}{r} 3 \text{ h } 5 \text{ min} \\ + 8 \text{ h } 55 \text{ min} \\ \hline \end{array}$$

10. 
$$\begin{array}{r} 9 \text{ h } 5 \text{ min} \\ - 8 \text{ h } 22 \text{ min} \\ \hline \end{array}$$

# Solving Addition and Subtraction Equations

Paige gave 6 peaches to Simon. Paige now has 8 peaches. How many peaches did Paige have to start?

The number of peaches Paige now has equals the number of peaches she had at the start minus the number she gave to Simon.

So,  $p - 6 = 8$   $p$  = number of peaches at the start

To solve this equation, you need to get  $p$  alone. You can do this by using an inverse operation. An inverse operation is an opposite—addition and subtraction, for example, are inverse operations.

To get  $p$  alone, add 6 to both sides of the equation.

**Tip:** If you add or subtract on one side of the equation, you must do the same on the other side.

$$p - 6 + 6 = 8 + 6$$

$$p = 14 \quad \text{So, Paige started out with 14 peaches.}$$

For questions 1 through 4, solve each equation.

1.  $a + 3 = 5$  \_\_\_\_\_

2.  $y - 14 = 9$  \_\_\_\_\_

3.  $8 + p = 15$  \_\_\_\_\_

4.  $52 = c + 18$  \_\_\_\_\_

5. Mary's sister is 4 years older than Mary. Her sister is 12. Use the equation  $m + 4 = 12$  to find Mary's age.

\_\_\_\_\_

6. **Explain It** Lyndon solved  $x - 18 = 4$ . He said the answer was  $x = 4$ . Explain why this is correct or incorrect.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name \_\_\_\_\_

Reteaching

**17-1**

# Understanding Integers

You can use integers to represent word descriptions.

Remember: An integer is a whole number or its opposite (+7 and  $-7$  are integers). 0 is its own opposite.

Use a positive integer to represent word descriptions that show an increase.

up 3 floors +3

45 degrees above zero +45

5 steps forward +5

Use a negative integer to represent word descriptions that show a decrease.

300 feet below sea level  $-300$

cut off 10 inches  $-10$

2 steps backward  $-2$

In 1 through 8, write an integer for each word description.

- win 5 games \_\_\_\_\_
- earned \$3 \_\_\_\_\_
- lose 100 points \_\_\_\_\_
- grew 20 inches \_\_\_\_\_
- spent \$14 \_\_\_\_\_
- 2,200 feet above sea level \_\_\_\_\_
- go down 8 floors \_\_\_\_\_
- 15 minutes before test time \_\_\_\_\_

**Draw a Picture** Draw a number line to show the following:

9. +11

10.  $-2$