Unit 1:

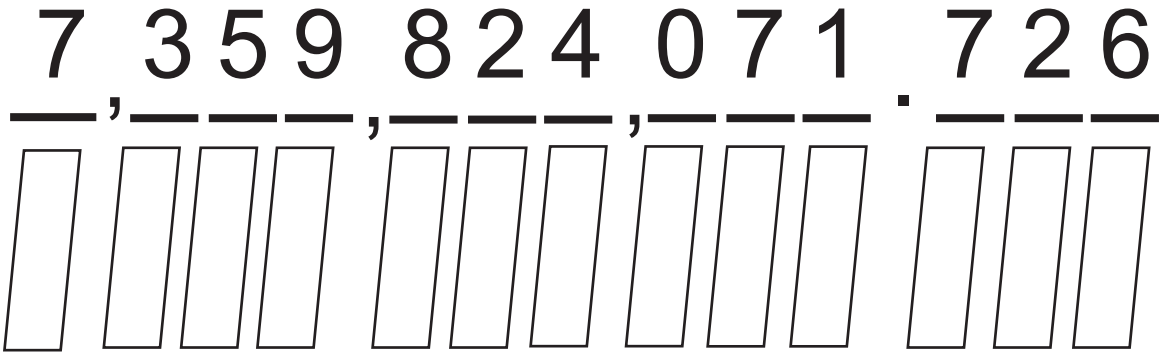
Place Value, Comparing and Ordering

"A place for everything, and everthing in its place."
- Samuel Smiles (1812 - 1904)

Unit Summary

Overview:

The Concept of place value has been around since 2000 B.C.E. It helps us understand the meaning of numbers and allows us to combine numbers using various mathematical operations. In this unit, students will review place value, comparing and using visual models and problem solving, students will apply their knowledge of place value, as well as gain a deeper understanding of fractions, decimal numbers, prime numbers, composite numbers, factors and greatest common factor (GCF), multiples, and the least common multiple (LCM).



Objectives:

Students will

- compare and order rational numbers
- generate equivalent forms of rational numbers
- identify multipes, common multiples, and the least common multiple of a set of positive integers
- identify factora, common factors, and the greatest common factos of a set of positive integers
- classify positive integers as prime or composite
- write the prime factorization of composite numbers using exponents

Name:	Date:

Daily Lesson

Place Value, Comparing and Ordering

Fill in the chart with the correct fractions and decimal numbers.

Written Form	Fraction	Decimal
Five tenths	1.	2.
Seven hundredths	3.	4.
Eight thousandths	5.	6.
Nine ten thousandths	7.	8.
Three and twenty-three hundredths	9.	10.
Six and twenty-nine ten thousandths	11.	12.

Fill in the blank with the corresponding digit.

13. 123.9876 = _____ tens place
_____ ones place
_____ ten thousandths place
_____ hundreds place
_____ tenths place
_____ hundredths place
_____ thousandths place

14. Fill in the blanks with the numbers that stand for the words.

9 hundredths, 3 tens, 4 ones, 2 tenths, 0 thousandths,
8 ten thousandths, and 6 hundreds

_____ _____ _____ . _____ _____ _____ _____

15. Write ", ", or = in each blank.

a. 2.90 ___ 2.09
b. 0.008 ___ 0.080
c. 0.612 ___ 0.621
d. 82.9562 ___ 82.9526
e. 6.031 ___ 6.301
f. 0.3456 ___ 0.3456

16. Order the numbers below from least to greatest.

2.30, 0.032, 2.03, 0.023, 0.0002

_____, _____, _____, _____, _____

Name:	Date:

Reteach Lesson

Place Value, Comparing and Ordering

1. In 567,904.548, the 8 is in the _____ place.
   a. Thousandths
   b. Ten thousands
   c. Ten thousandths
   d. Hundredths

2. Which number has a 5 in the ten thousandths place?
   a. 420,873.0587
   b. 420,873.5098
   c. 420,873.0859
   d. 420, 873.8095

3. Which number comes between 506,342,987.9764 and 506,342,987.9752?
   a. 506,342,987.9801
   b. 506,342,987.9765
   c. 506,342,987.9762
   d. 506,342,987.9028

4. If you add two hundred thirteen thousandths to the number 789.7029 you will have _____.
   a. 213,789.7029
   b. 789.9159
   c. 1,354.7549
   d. 1,354.7529

5. Tim, Eddie and Pat ran the 40 yard dash. Tim ran the race in 4.445 seconds. Eddie ran it in 5.540 seconds and Pat ran it in 4.405. Put the runners in order from the fastest to the slowest.

   _____

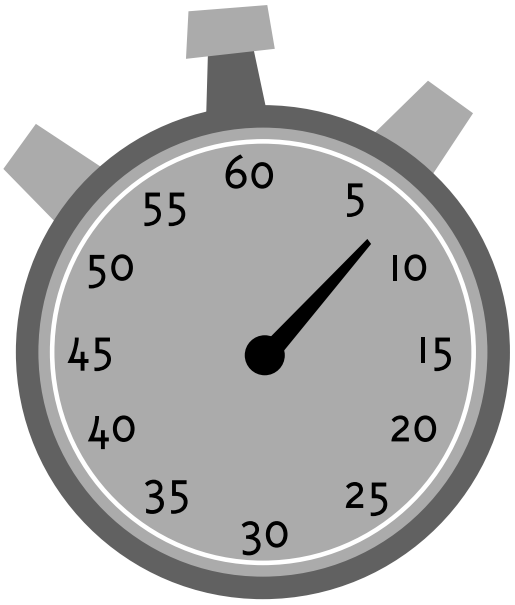
6. How would 5, 987,234.8976 be expressed in words?

   _____

Name:	Date:

F.L.I.P.S.

Six-Legged Race

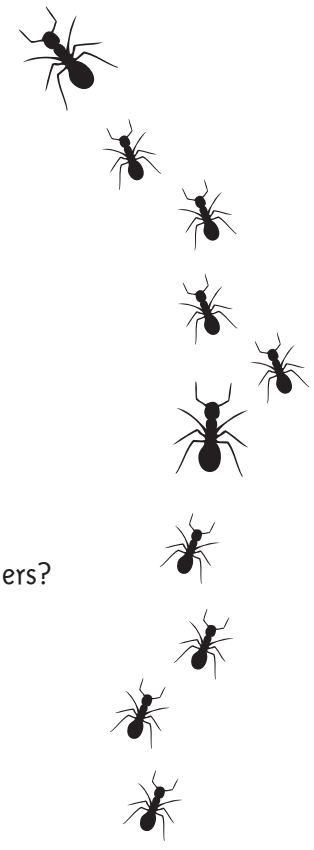


Wally received a fabulous present for his birthday — a digital stopwatch that displays time to ten thousandth of a second! Wally is so excited to time his pet ants. He believes they each run the five inch dash at identical speeds. Wally timed each of his ants— Thorax, Queenie, Aunt Enna, and Pincher— separately, and the stopwatch worked great. Here are the results of Wally's race: Thorax ran the distance in ten and five tenths seconds, Queenie ran it in ten and 61 hundredths seconds, Aunt Enna ran it in ten and 502 thousandth seconds, and Pincher ran the five inch dash in ten and 4,995 ten thousandth seconds.

Problem

It is time for Wally to hand out the medals for the winners. Enter the names of Wally's ants in the table in the order in which they finished. Enter the time of each contestant beside their name.

Name:	Time:
1. _____	_____
2. _____	_____
3. _____	_____
4. _____	_____



5. What was the time difference between the time of the first and second place finishers?

_____

Name:	Date:

Home Connection

Place Value, Comparing and Ordering

1. Match Column **A** with Column **B**.

Column A	Column B
_____ 1.234	w. $8\frac{56}{100}$
_____ 80.56	s. $\frac{87}{1{,}000}$
_____ 4.009	z. $80\frac{56}{100}$
_____ 0.087	n. $4\frac{9}{10}$
_____ 8.57	r. $1\frac{234}{1{,}000}$
_____ 4.90	y. $1\frac{324}{1{,}000}$
_____ 1.324	q. $4\frac{9}{100}$
_____ 0.083	p. $7\frac{85}{100}$
_____ 7.85	c. $8\frac{57}{100}$
_____ 4.09	d. $4\frac{9}{1{,}000}$
_____ 8.56	f. $\frac{83}{1{,}000}$

2. What number has two tenths, seven hundredths, six ten thousandths, and one thousandth?

_____

3. What number has five hundredths, four tenths, nine ten thousandths, and zero thousandths?

_____

4. Write four different numbers in the blanks below.

   a. __ __ __ . __ __ __ __

   b. __ __ __ . __ __ __ __

   c. __ __ __ . __ __ __ __

   d. __ __ __ . __ __ __ __

   e. Order the numbers you created from least to greatest.

Name:	Date:

Daily Lesson

All Mixed Up!

Draw a number line and place the numbers below on the correct position on the number line.

1. $\frac{1}{3}$ 25% 0.35 $\frac{2}{5}$ 0.005 0.05

   50% 0.76 0.45 62% $\frac{4}{5}$ 0.915

Draw a number line and place the numbers below on the correct position on the number line.

2. 1.35 89% 1.212 1.05 16% 0.9

   $\frac{2}{3}$ $1\frac{3}{10}$ 110% 0.303 $\frac{3}{6}$ 0.72

Name:	Date:

Reteach Lesson

Decimal Numbers on a Number Line

1. Which number belongs at Point ☺?

a. 1.3 b. 1.4 c. 1.5 d. 1.6

2. Which number belongs at Point ★?

a. 4.3 b. 4.34 c. 5.75 d. 4.75

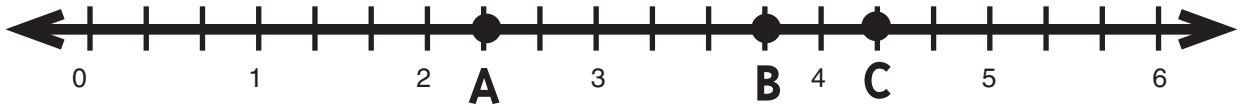
3. Which point shows the location of $\frac{3}{2}$ on the number line?

a. Point ♥ b. Point ♠ c. Point ♦ d. Point ♣

4. Which point shows the location of 0.5 on the number line?

a. Point ❍ b. Point ★ c. Point ❀ d. Point ☼

5. Which of the following is a true statement?

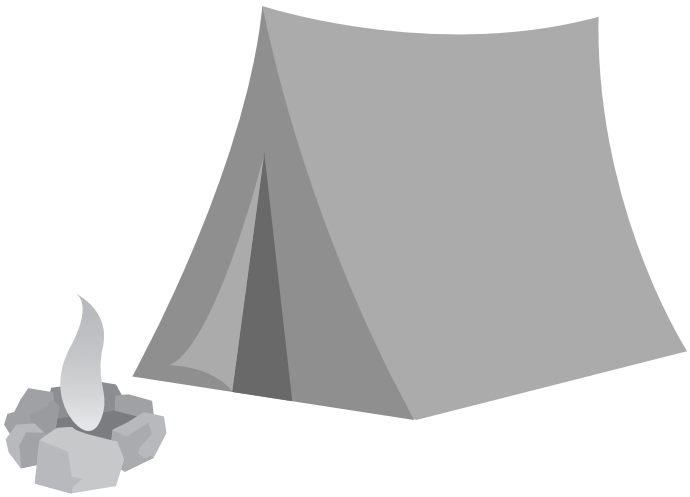


a. Point A > 2.5 b. Point B = 3.75 c. Point A > 2.25 d. Point C = 4.5

Name: Date:

F.L.I.P.S.

The Sultans of Swat



Mark, Nikhil, and Dalton stayed overnight at Camp Itch-a-lot, but unfortunately they had to share their tent with 682 mosquitoes. The boys decided that if they were going to get any sleep, they would have to try and swat the pests. Sometimes they succeeded and sometimes they didn't.

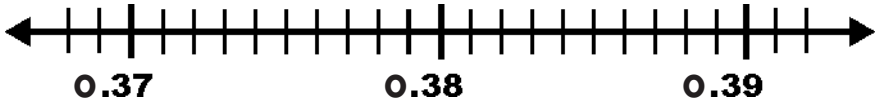
- Mark swatted 77 out of 200 mosquitoes.
- Nikhil swatted 96 out of 250.
- Dalton 87 out of 232.

Problems

1. Convert each of the boy's numbers into a decimal number.

Mark	Nikhil	Dalton
_____	_____	_____

2. Plot the numbers on the number line below to see who had the highest swatting average. Be sure to label each boys average.



Name:	Date:

Home Connection

Who is Catching Enough ZZZ's?

How much sleep a person needs depends on a number of factors, one of which is age. The following table shows a guideline of how much sleep a person might need.

How Much Sleep Do You Need?	
Age	**Sleep Needs**
Newborns (1-2 months)	10.5-18 hours
Infants (3-11 months)	9-12 hours during night and 30-minute to two-hour naps, one to four times a day
Toddlers (1-3 years)	12-14 hours
Preschoolers (3-5 years)	11-13 hours
Elementary School-Aged Children	10-11 hours
Preteen (9-12 years)	8.5-9.25 hours
Teens	8-9 hours
Adults	7-9 hours

1. Choose five people. At least three of your participants should be from different age groups.
2. Log the amount of sleep that each person gets for three nights. Round the time to the nearest quarter of an hour.
3. Record the data in decimal form in the table below.

Person	Night 1	Night 2	Night 3	Sum	Average

Name: Date:

Home Connection - continued

4. In the space below, create a graph to show the average hours of sleep for each person.

Use the data from the previous page and the graph abpve to answer the following questions.

5. Who is getting the most sleep?

_____

6. Who gets the least amount of sleep?

_____

7. According to the first table, who on your list needs the most sleep?

_____

8. Is the person that needs the most sleep getting it? How much more/less is needed?

_____

9. Who on your list is getting much less sleep than needed? About how much more sleep does this person need each night?

_____

Name:	Date:

Daily Lesson
Factors

Use the clues to find the answers.

1. Two of my factors are 3 and 13. I am an even number between 70 and 90. What number am I?

   _____

2. I have an odd number of factors, which makes me a square number. The sum of my digits is 13, and I am less than 100. What number am I?

   _____

3. The sum of my factors is 36. What number am I?

   _____

4. I am the smallest number with common factors 21 and 12. What number am I?

   _____

5. The sum of all of my factors is 96. I am an even number less than 50. What number am I?

   _____

6. Our greatest common factor is 6 and we have a difference of 30. If we are both even numbers less than 50, who are we? _____ and _____

Name: Date:

Reteach Lesson

More Factors!

1. Find the factors of 24 and 72. Then find the Greatest Common Factor or GCF.

   24: _____

   72: _____

   GCF: _____

2. Find the factors of 18 and 21. Then find the Greatest Common Factor or GCF.

   18: _____

   21: _____

   GCF: _____

3. Find the factors of 54 and 81. The find the Greatest Common Factor or GCF.

   54: _____

   81: _____

   GCF: _____

4. How are the factors of 81 different from the factors of the other numbers in the exercises above?

   _____

   _____

   _____

   _____

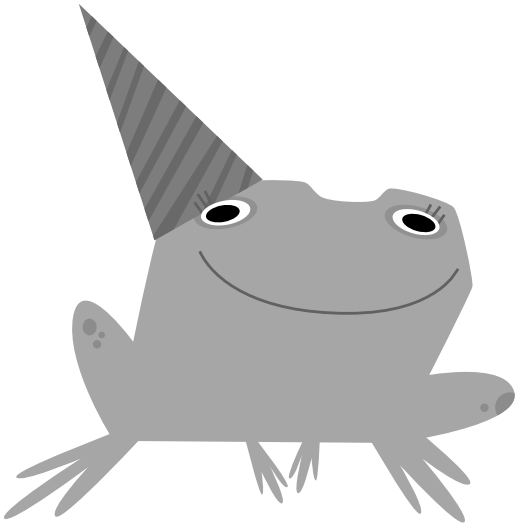
   _____

Name:	Date:

F.L.I.P.S.

A Riveting Party

Sydney was so busy collecting bugs to give out as gifts at her bff (best-frog-friend), Lily's, party that she forgot to send out invitations. Lily would croak if she found out. It was time to stop collecting and start calling. But how many frogs could Sydney ask over? She wanted to invite as many of Lily's friends as she could, but she didn't want to waste any of the 36 flies, 27 grasshoppers, or 18 aphids that she had gathered.



Problems

1. Help Syndey find out the greatest number of frogs she could feed without having any bugs leftoverby finding the greatest common factor of 36, 27, and 18.

   _____ frogs

2. How many of each insect would the frogs receive?

   a. _____ flies b. _____ grasshoppers c. _____ aphids

Name:	Date:

Home Connection
Don't Forget to Factor in Time for Homework!

With only 24 hours in a day, it's hard to get everything done! Use all of the factors of 24 to compose a schedule for your day as shown in the example. You may use some factor pairs twice. Estimate or round the times as needed.

Example

McKenzie spends her day as follows.

- 1/3 of her day sleeping: 8 hours
- 1/24 of her day walking her dog: 1 hour
- 1/8 of her day eating: 3 hours
- 1/3 of her day at school: 8 hours
- 1/6 of her day in other activities: 4 hours

Your Schedule

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

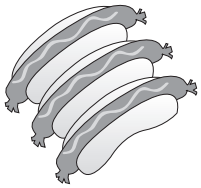
Name:	Date:

Daily Lesson
Square Dancing Extravaganza!

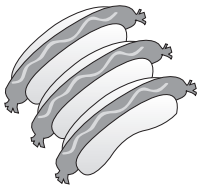
47th Annual Square Dance Extravaganza
Saturday 6-10

As treasurer of the school Square Dancing Club, you are responsible for purchasing food for the 47th Annual Square Dancing Extravaganza! You want to spend money responsibly, and not have extra food leftover.

1. Mumbo Jumbo Hot Dogs are sold in packages of 10, but Mumbo Jumbo Hot Dog Buns are sold in packages of 8. How many packages of each will you have to buy in order to have an equal number of hot dogs and buns?



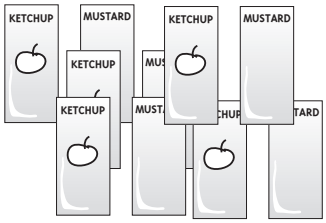
_____ packages



2. You need individual packets of mustard and ketchup for the square dancers to use on their hot dogs. Not wanting to show favoritism, you want to have equal numbers of ketchup and mustard packets.Ketchup packets are sold in 12 packets per box, and mustard packets are sold in 8 packets per box. What is the least number of boxes of each you can buy in order to have an equal number of packet?

Ketchup: _____ packages

Mustard: _____ packages



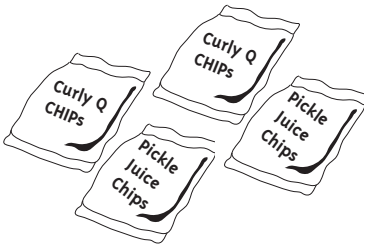
3. You also need both vegetarian chili and non-vegetarian chili. Veggie Chili is sold in 8-ounce cans, and Meat Rules Chili is sold in 14-ounce cans. What is the least number of cans of each you can buy to have equal amounts of each type of chili?

Veggie Chili: _____ cans Meat Rules: _____ cans

Name: **Date:**

Daily Lesson - continued

4. Curly Q Corn Chips are sold in packages of 6 mini bags for $4. Petunia's Pickle Juice Potato Chips are sold in packages of 8 mini bags for $3.50. What is the least number of packages of each you can buy in order to have the same number of mini bags of each type of chip, and how much will it cost you?



Curly Q Chips: _____ packages $ _____

Pickele Juice Chips: _____ packages $ _____

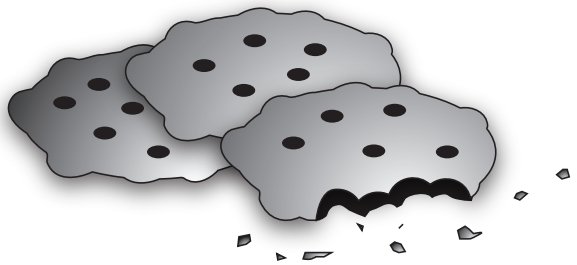
5. For dessert, you are going to ask your grandma, a former champion square dancer, to bake her world famous Oatmeal Caramel Chocolate Cookies.
   - Caramel is sold in 8-ounce jars,
   - chocolate syrup is sold in 12-ounce jars, and
   - oatmeal comes in 36-ounce containers.

   Grandma needs equal amounts of each for her cookies. How many of each container will you need to buy for grandma to bake her cookies?

caramel: _____ jars

chocolate syrup: _____ jars

oatmeal: _____ containers



Name:	Date:

Reteach Lesson
Multiples

1. What is the Least Common Multiple of 6 and 8?
   a. 48 **b.** 12
   c. 24 **d.** 14

2. What is the Least Common Multiple of 3, 4, and 9?
   a. 36
   b. 27
   c. 54
   d. 18

3. What is the Least Common Multiple of 12 and 15?
   a. 30 **b.** 45
   c. 48 **d.** 60

4. What is the Least Common Multiple of 18 and 30?
   a. 60
   b. 48
   c. 90
   d. 120

5. Rachel and her friend Ryan get allergy shots at the same doctor's office. Rachel has to get a shot every 6 days, and Ryan has to get a shot every 9 days. What is the first day that they could possibly run into each other in the waiting room after getting their shots on the same day?
   a. Day 54
   b. Day 15
   c. Day 36
   d. Day 18

6. It takes Trey 10 minutes to ride his bike around the bike trail at Blue Stone Park. It takes Kelly 14 minutes to ride her bike around the same trail. Which lap will each be on when they meet at the start?
   a. Kelly will be on her 5^{th} lap, and Trey will be on his 7^{th}
   b. Kelly will be on her 6^{th} lap, and Trey will be on his 8^{th}
   c. Kelly will be on her 7^{th} lap, and Trey will be on his 5^{th}
   d. Kelly will be on her 10^{th} lap, and Trey will be on his 14^{th}

Name:	Date:

F.L.I.P.S.

I Scream, You Scream

The ice cream truck circles Bob's and Truett's block every Sunday. It plays one song—Pop Goes the Weasel—over and over, but that is beside the point. The boys just missed the truck last Sunday in front of Truett's house, so they decided to chase it. Unfortunately, the ice cream truck is faster than they are. Why they didn't just stay in one spot and wait for it to come back around is anyone's guess!

- The truck can circle the block in seven minutes.
- Bob can run around the block in nine minutes.
- Truett can jog around the block in twelve minutes.

Problem

Find the least common multiple to determine how many laps around the block the ice cream truck will make, how many laps Bob will make, and how many laps Truett will make before they are all in front of Truett's house at the same time again.

1. Truck

_____ laps

2. Bob

_____ laps

3. Truett

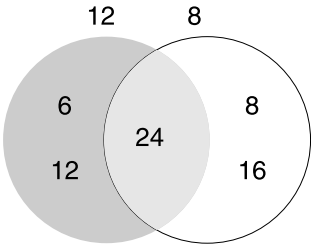
_____ laps

Name:	Date:

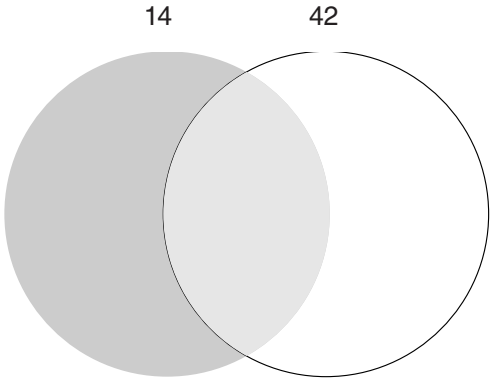
Home Connection
More Multiples Practice!

Fill in the Venn diagram with at least 6 multiples of each number. Write the Least Common Multiple (LCM) in a different color. The first one has been started for you.

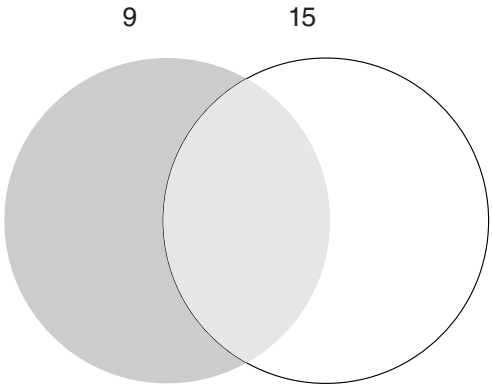
Example



1.LCM: _____



2.LCM: _____



Name: Date:

Daily Lesson

Prime and Composite Numbers

1. What is a prime number?

_____

2. Are the following numbers prime or composite? If prime, write "prime". If composite, list the factors.

a. 31

_____

b. 24

_____

c. 17

_____

d. 51

_____

e. 55

_____

f. 56

_____

3. What are the factors of 12?

_____

4. What are the factors of 19?

_____

5. How would you classify the number 19?

_____

6. How would you classify the pair of numbers 12 and 19?

_____

7. Give a pair of numbers that are relatively prime.

_____ and _____

Name:	Date:

Reteach Lesson
Prime and Composite Numbers

1. David writes two prime numbers between 24 and 36. What are the two numbers he writes?

   _____ and _____

2. Numbers X and Y have no common factors except one. These two numbers would be classified as
   a. prime.
   b. relatively prime.
   c. composite.
   d. relatively composite.

3. The sum of two prime numbers is 16. The pair of numbers is
   a. 5 and 11.
   b. 3 and 13.
   c. both a and b.
   d. neither a or b.

4. Which pair of numbers below are relatively prime numbers?
   a. 8 and 22
   b. 7 and 14
   c. 3 and 42
   d. 8 and 15

5. Which number below is not composite?
   a. 26
   b. 21
   c. 19
   d. 39

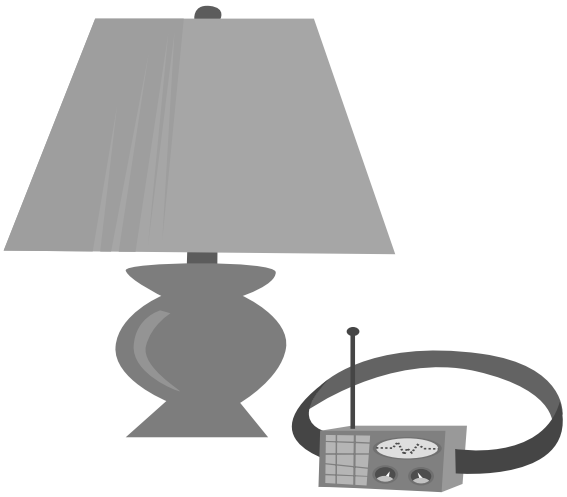
6. Which number below is composite?
   a. 13
   b. 27
   c. 23
   d. 17

Name:	Date:

F.L.I.P.S.

The Perfect Match

Becky and Julienne are both generous souls, and they are best of friends. They each have an overabundance of their favorite items which they want to share with the same people. Becky has 36 gasoline-powered dog collars, and Julienne has 145 tangerine-colored lampshades.



Problem

By finding the factor pairs of the two quantities, decide if the girls will each be able to divide up their items equally among the same number of people.

1. List the factors of 36 and 145. Show your work.

Factors of 36: _____

Factors of 145: _____

2. List the factors, other than one, that 36 and 145 share. If the two numbers are relatively prime, write "none" in the blank.

Common factors of 36 and 145:
_____

3. List Will the girls be able to share their items equally among the same number of friends?

Name:	Date:

Home Connection

Prime and Composite Numbers

1. Write your zip code. _____

   Is your zip code a **prime** or **composite number**? Explain your answer.

   _____

   _____

2. Write the day you were born. _____

   Is that day a **prime** or **composite number**? Explain your answer.

   _____

   _____

3. Write the year you were born. _____

   Is that year a **prime** or **composite number**? Explain your answer.

   _____

   _____

4. Write your age. _____

   a. Now write the name and age of one of your relatives.

   _____

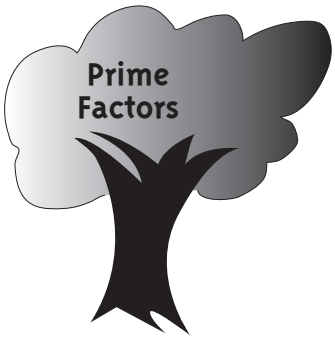
   b. Are the ages of you and your relative **relatively prime**? Explain your answer.

   _____

   _____

Name:	Date:

Daily Lesson
Prime Factorization



Fill in the blanks.

1. _____ are a way to express repeated multiplication.

2. _____ _____ is a way to express a number as the product of its prime factors.

3. Draw a factor tree to help you find the prime factorization for each number below. Using exponents, write the prime factorization below each tree.

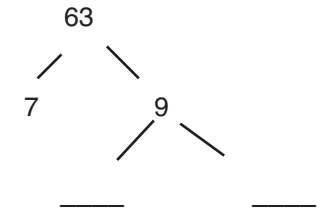
a. 27 _____	b. 42 _____
c. 108 _____	d. 56 _____

Name: Date:

Reteach Lesson
Prime Factorization

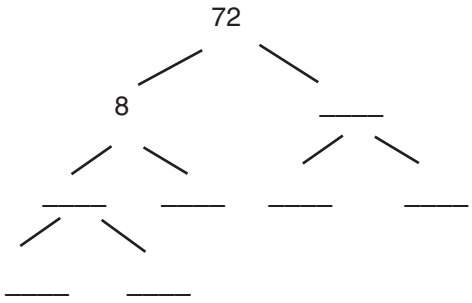
Complete each factor tree below. Write the correct prime factorization using exponents on the line below the factor tree.

1.



Prime Factorization: _____

2.



Prime Factorization: _____

3. Did you know that there are $2^2 \times 3 \times 13$ people living in Uncertain, Texas? How many "Uncertainites" does that equal?

_____

4. The population of Likely, California is approximately $2^3 \times 37$.
How many people likely live in Likely?

_____

5. Which is the correct prime factorization of 32?

a. 2^5 b. 2^4 c. 2^3 d. $2^2 \times 8$

6. Which is the correct prime factorization of 112?

a. $2^3 \times 7$ b. $2^4 \times 7$ c. $2^3 \times 4$ d. $2 \times 7 \times 8$

Name:	Date:

F.L.I.P.S.
Super Power Digits

Cody and his friend Chris love factoring numbers. They do it before school, after school, during recess, and even while they eat their lunch. They cannot wait until summer so they can go to Factorization Camp. Their favorite skill, however, is prime factorization. And when they learned how to write prime factors using exponents, well, they thought they had died and gone to heaven. They even made a game of it by calling large composite numbers "stories," and calling their numbers factors "characters". They pretended that each prime factor was a "super hero", and, if a factor had an exponent, the boys called it the super hero's "sidekick".

Problem

Which two of the following "stories" that Cody and Chris made up (275, 297, 286, 315) have the same "super hero" as a character, but with a different "sidekick"?

Name:	Date:

Home Connection
Family Tree Factorization!

1. Use the space below to draw a factor tree to find the prime factorization of your age.

   Your age: _____

Prime factorization: _____

2. Now, choose three family members or friends and find the prime factorizations of their ages, too. Draw a factor tree on a separate sheet of paper, if needed. Can you find family members or friends from three different generations?

   a. First name: _____

   Age: _____ Prime factorization: _____

   b. Second name: _____

   Age: _____ Prime factorization: _____

   c. Third name: _____

   Age: _____ Prime factorization: _____

Name:	Date:

Be creative write your own F.L.I.P.S.