Name_____ Date _____

Chapter 1 Fair Game Review

Determine whether the number is prime or composite.

1. 4

2. 7

3. 13

4. 22

5. 19

6. 27

7. 30

8. 37

9. 41

10. 45

11. You have 33 marbles. Besides 1 group of 33 marbles, is it possible to divide the marbles into groups with the same number of marbles with no marbles left over?

12. You have 43 pencils. Besides 1 group of 43 pencils, is it possible to divide the pencils into groups with the same number of pencils with no pencils left over?

Name _____ Date _____

Chapter 1 Fair Game Review (continued)

Add or subtract.

13. $1\frac{1}{5} + 1\frac{3}{5}$

14. $2\frac{3}{7} + 3\frac{2}{7}$

15. $4\frac{5}{9} + 6\frac{2}{9}$

16. $3\frac{6}{11} + 5\frac{4}{11}$

17. $4\frac{3}{4} - 2\frac{1}{4}$

18. $5\frac{3}{8} - 3\frac{7}{8}$

19. $2\frac{3}{10} - 1\frac{7}{10}$

20. $6\frac{5}{12} - 2\frac{11}{12}$

21. You are baking cookies. You have $7\frac{1}{4}$ cups of flour. You use $2\frac{3}{4}$ cups of flour. How much flour do you have left?

Name_____ Date _____

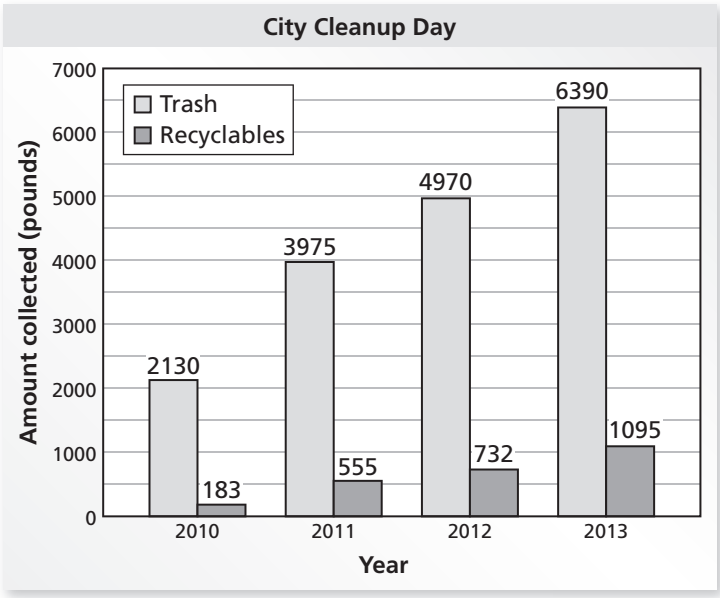
1.1 Whole Number Operations

For use with Activity 1.1

Essential Question How do you know which operation to choose when solving a real-life problem?

1 ACTIVITY: Choosing an Operation

Work with a partner. The double bar graph shows the history of a citywide cleanup day.



- **Underline a key word or phrase that helps you know which operation to use to answer each question below. State the operation. Why do you think the key word or phrase indicates the operation you chose?**
- **Write an expression you can use to answer the question.**
- **Find the value of your expression.**

a. What is the total amount of trash collected from 2010 to 2013?

b. How many more pounds of recyclables were collected in 2013 than in 2010?

c. How many times more recyclables were collected in 2012 than in 2010?

d. The amount of trash collected in 2014 is estimated to be twice the amount collected in 2011. What is that amount?

2 ACTIVITY: Checking Answers

Work with a partner.

a. Explain how you can use estimation to check the reasonableness of the value of your expression in Activity 1(a).

b. Explain how you can use addition to check the value of your expression in Activity 1(b).

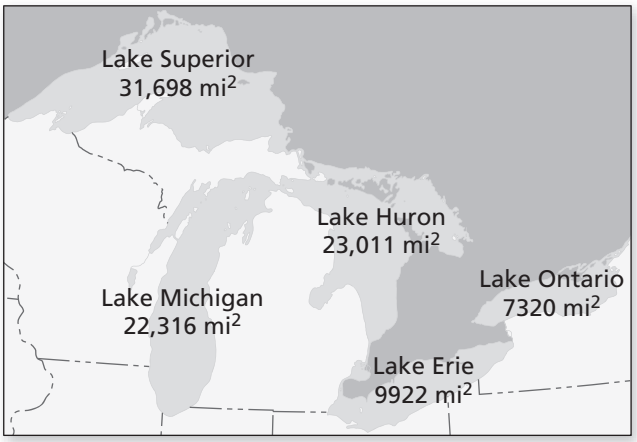
c. Explain how you can use estimation to check the reasonableness of the value of your expression in Activity 1(c).

d. Use mental math to check the value of your expression in Activity 1(d). Describe your strategy.

3 ACTIVITY: Using Estimation

Work with a partner. Use the map. Explain how you found each answer.

a. Which two lakes have a combined area of about 33,000 square miles?



b. Which lake covers an area about three times greater than the area of Lake Erie?

c. Which lake covers an area that is about 16,000 square miles greater than the area of Lake Ontario?

d. Estimate the total area covered by the Great Lakes.

What Is Your Answer?

4. IN YOUR OWN WORDS How do you know which operation to choose when solving a real-life problem?

5. In a *magic square*, the sum of the numbers in each row, column, and diagonal is the same and each number from 1 to 9 is used only once. Complete the magic square. Explain how you found the missing numbers.

	9	2
	5	
8		

Name _____ Date _____

1.1 Practice

For use after Lesson 1.1

Find the value of the expression. Use estimation to check your answer.

1. $5947 + 2001$

2.
$$\begin{array}{r} 2587 \\ +\ 1654 \\ \hline \end{array}$$

3. $5684 + 3118$

4. $1596 - 302$

5. $9564 - 7581$

6.
$$\begin{array}{r} 7094 \\ -\ 989 \\ \hline \end{array}$$

7. $851 \div 37$

8. $\dfrac{612}{68}$

9. $8970 \div 345$

10. $\dfrac{5424}{52}$

11. $8549 \div 198$

12. $74{,}386 \div 874$

13. Your family is traveling 345 miles to an amusement park. You have already traveled 131 miles. How many more miles must you travel to the amusement park?

Name_____ Date _____

1.2 Powers and Exponents

For use with Activity 1.2

Essential Question How can you use repeated factors in real-life situations?

As I was going to St. Ives
I met a man with seven wives
Each wife had seven sacks
Each sack had seven cats
Each cat had seven kits
Kits, cats, sacks, wives
How many were going to St. Ives? Nursery Rhyme, 1730

1 ACTIVITY: Analyzing a Math Poem

Work with a partner. Here is a "St. Ives" poem written by two students. Answer the question in the poem.

As I was walking into town
I met a ringmaster with five clowns
Each clown had five magicians
Each magician had five bunnies
Each bunny had five fleas
Fleas, bunnies, magicians, clowns
How many were going into town?

Number of clowns: 5 = _____

Number of magicians: 5×5 = _____

Number of bunnies: $5 \times 5 \times 5$ = _____

Number of fleas: $5 \times 5 \times 5 \times 5$ = _____

So, the number of fleas, bunnies, magicians, and clowns is _____.

Name _____ Date _____

1.2 Powers and Exponents (continued)

2 ACTIVITY: Writing Repeated Factors

Work with a partner. Complete the table.

Repeated Factors	Using an Exponent	Value
a. 4×4		
b. 6×6		
c. $10 \times 10 \times 10$		
d. $100 \times 100 \times 100$		
e. $3 \times 3 \times 3 \times 3$		
f. $4 \times 4 \times 4 \times 4 \times 4$		
g. $2 \times 2 \times 2 \times 2 \times 2 \times 2$		

h. In your own words, describe what the two numbers in the expression 3^5 mean.

3 ACTIVITY: Writing and Analyzing a Math Poem

Work with a partner.

a. Write your own "St. Ives" poem.

b. Draw pictures for your poem.

c. Answer the question in your poem.

d. Show how you can use exponents to write your answer.

What Is Your Answer?

4. IN YOUR OWN WORDS How can you use repeated factors in real-life situations? Give an example.

5. STRUCTURE Use exponents to complete the table. Describe the pattern.

10	100	1000	10,000	100,000	1,000,000
10^1	10^2				

Name _____ Date _____

1.2 Practice

For use after Lesson 1.2

Write the product as a power.

1. $5 \times 5 \times 5$

2. 13×13

3. $8 \bullet 8 \bullet 8 \bullet 8 \bullet 8 \bullet 8$

4. $12 \bullet 12 \bullet 12 \bullet 12 \bullet 12$

5. $10 \bullet 10 \bullet 10 \bullet 10$

6. $17 \times 17 \times 17$

Find the value of the power.

7. 4^4

8. 9^3

9. 24^2

Determine whether the number is a perfect square.

10. 47

11. 16

12. 121

13. You complete 3 centimeters of a necklace in an hour. Each hour after the first, you triple the length of the necklace. Write an expression using exponents for the length of the necklace after 3 hours. Then find the length.

Name_____ Date _____

1.3 Order of Operations

For use with Activity 1.3

Essential Question What is the effect of inserting parentheses into a numerical expression?

1 ACTIVITY: Comparing Different Orders

Work with a partner. Find the value of the expression by using different orders of operations. Are your answers the same? (Circle *yes* or *no.*)

a. Add, then multiply. Multiply, then add. Same?

$3 + 4 \times 2 =$ _____ $3 + 4 \times 2 =$ _____ Yes No

b. Add, then subtract. Subtract, then add. Same?

$5 + 3 - 1 =$ _____ $5 + 3 - 1 =$ _____ Yes No

c. Divide, then multiply. Multiply, then divide. Same?

$12 \div 3 \bullet 2 =$ _____ $12 \div 3 \bullet 2 =$ _____ Yes No

d. Divide, then add. Add, then divide. Same?

$16 \div 4 + 4 =$ _____ $16 \div 4 + 4 =$ _____ Yes No

e. Multiply, then subtract. Subtract, then multiply. Same?

$8 \times 4 - 2 =$ _____ $8 \times 4 - 2 =$ _____ Yes No

f. Multiply, then divide. Divide, then multiply. Same?

$8 \bullet 4 \div 2 =$ _____ $8 \bullet 4 \div 2 =$ _____ Yes No

Name _____ Date _____

1.3 Order of Operations (continued)

g. Subtract, then add. Add, then subtract. Same?

$13 - 4 + 6 =$ _____ $13 - 4 + 6 =$ _____ Yes No

h. Multiply, then add. Add, then multiply. Same?

$1 \times 2 + 3 =$ _____ $1 \times 2 + 3 =$ _____ Yes No

2 ACTIVITY: Using Parentheses

Work with a partner. Use all the symbols and numbers to write an expression that has the given value.

	Symbols and Numbers	*Value*	*Expression*
a.	$(\ ), +, \div, 3, 4, 5$	3	_____
b.	$(\ ), -, \times, 2, 5, 8$	11	_____
c.	$(\ ), \times, \div, 4, 4, 16$	16	_____
d.	$(\ ), -, \div, 3, 8, 11$	1	_____
e.	$(\ ), +, \times, 2, 5, 10$	70	_____

1.3 Order of Operations (continued)

3 ACTIVITY: Reviewing Fractions and Decimals

Work with a partner. Evaluate the expression.

a. $\frac{3}{4} - \left(\frac{1}{4} + \frac{1}{2}\right)$

b. $\left(\frac{5}{6} - \frac{1}{6}\right) - \frac{1}{12}$

c. $7.4 - (3.5 - 3.1)$

d. $10.4 - (8.6 + 0.9)$

e. $(\$7.23 + \$2.32) - \$5.40$

f. $\$124.60 - (\$72.41 + \$5.67)$

What Is Your Answer?

4. In an expression with two or more operations, why is it necessary to agree on an order of operations? Give examples to support your explanation.

5. IN YOUR OWN WORDS What is the effect of inserting parentheses into a numerical expression?

Name _____ Date _____

1.3 Practice

For use after Lesson 1.3

Evaluate the expression.

1. $9 - 6 \div 3$

2. $36 - 7(2)$

3. $(5 + 1) \div 2$

4. $8 + (10 - 4) - 3^2$

5. $(3 + 5)^2 \div 4 + 19$

6. $12(3 + 3) \div 18$

7. $\dfrac{(2^2 + 1)}{5}$

8. $\dfrac{2(3 + 1)}{8}$

9. $\dfrac{10^2 \div 4}{3 + 2}$

10. You and three friends go to a restaurant for dinner. You share three appetizers that cost \$6 each. You also share two desserts that cost \$3 each. You split the total bill evenly. How much does each person pay?

Name_____ Date _____

1.4 Prime Factorization

For use with Activity 1.4

Essential Question Without dividing, how can you tell when a number is divisible by another number?

1 ACTIVITY: Finding Divisibility Tests for 2, 3, 5, and 10

Work with a partner.

	1	2	3	4	5	6	7	8	9	10
	11	12	13	14	15	16	17	18	19	20
	21	22	23	24	25	26	27	28	29	30
	31	32	33	34	35	36	37	38	39	40
	41	42	43	44	45	46	47	48	49	50

a. Highlight all the numbers that are divisible by 2.

b. Put a box around the numbers that are divisible by 3.

c. Underline the numbers that are divisible by 5.

d. Circle the numbers that are divisible by 10.

e. **STRUCTURE** In parts (a)–(d), what patterns do you notice? Write four rules to determine when a number is divisible by 2, 3, 5, and 10.

2 ACTIVITY: Finding Divisibility Rules for 6 and 9

Work with a partner.

a. List ten numbers that are divisible by 6. Write a rule to determine when a number is divisible by 6. Use a calculator to check your rule with large numbers.

b. List ten numbers that are divisible by 9. Write a rule to determine when a number is divisible by 9. Use a calculator to check your rule with large numbers.

3 ACTIVITY: Rewriting a Number Using 2s, 3s, and 5s

Work with three other students. Use the following rules and only the prime factors 2, 3, and 5 to write each number on the next page as a product.

- Your group should have four sets of cards: a set with all 2s, a set with all 3s, a set with all 5s, and a set of blank cards. Each person gets one set of cards.*
- Begin by choosing two cards to represent the given number as a product of two factors. The person with the blank cards writes any factors that are not 2, 3, or 5.
- Use the cards again to represent any number written on a blank card as a product of two factors. Continue until you have represented each handwritten card as a product of two prime factors.
- You may use only one blank card for each step.

*Cut-outs are available in the back of the Record and Practice Journal.

1.4 Prime Factorization (continued)

a. 108

b. 80

c. 162

d. 300

e. Compare your results with those of other groups. Are your steps the same for each number? Is your final answer the same for each number?

What Is Your Answer?

4. IN YOUR OWN WORDS Without dividing, how can you tell when a number is divisible by another number? Give examples to support your explanation.

5. Explain how you can use your divisibility rules from Activities 1 and 2 to help with Activity 3.

Name _____ Date _____

1.4 Practice

For use after Lesson 1.4

List the factor pairs of the number.

1. 6

2. 7

3. 10

4. 16

5. 35

6. 55

Write the prime factorization of the number.

7. 9

8. 24

9. 40

10. 44

11. 50

12. 65

13. A fitness instructor arranges 30 people into rows. Each row has the same number of people.

a. Can the instructor arrange the people into rows of 6?

b. Can the instructor arrange the people into rows of 9?

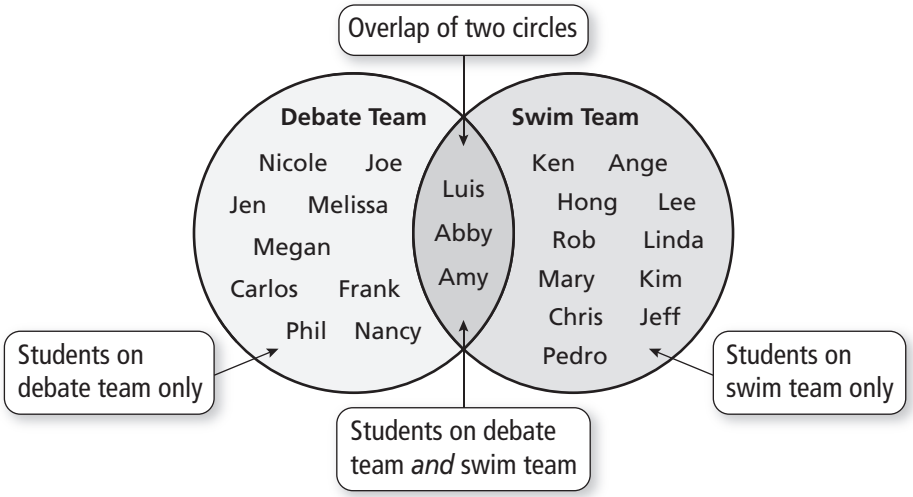
Name_____ Date _____

1.5 Greatest Common Factor

For use with Activity 1.5

Essential Question How can you find the greatest common factor of two numbers?

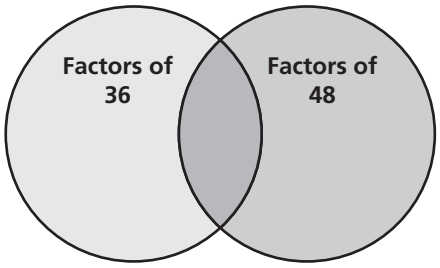
A **Venn diagram** uses circles to describe relationships between two or more sets. The Venn diagram shows the names of students enrolled in two activities. Students enrolled in both activities are represented by the overlap of the two circles.



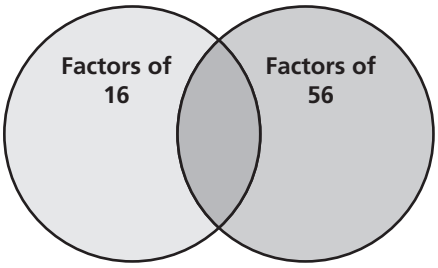
1 ACTIVITY: Identifying Common Factors

Work with a partner. Complete the Venn diagram. Identify the *common factors* of the two numbers.

a. 36 and 48

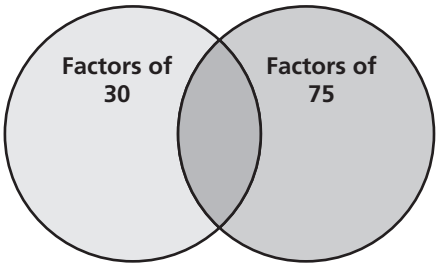


b. 16 and 56

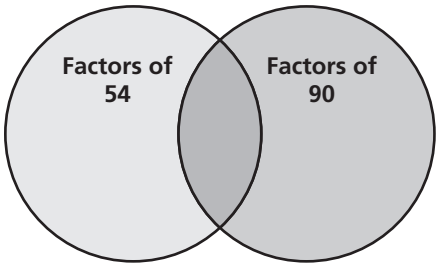


1.5 Greatest Common Factor (continued)

c. 30 and 75



d. 54 and 90

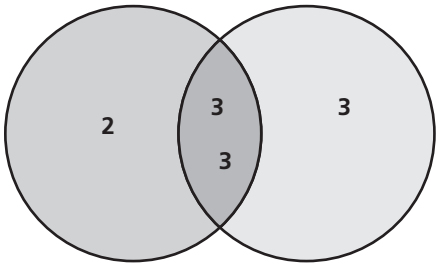


e. Look at the Venn diagrams in parts (a)–(d). Explain how to identify the *greatest common factor* of each pair of numbers. Then circle it in each diagram.

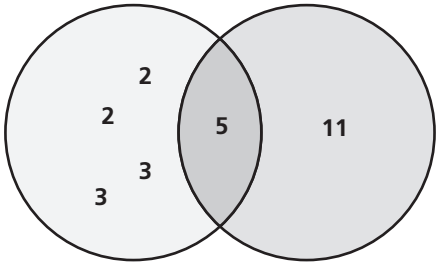
2 ACTIVITY: Interpreting a Venn Diagram of Prime Factors

Work with a partner. The Venn diagram represents the prime factorization of two numbers. Identify the two numbers. Explain your reasoning.

a.



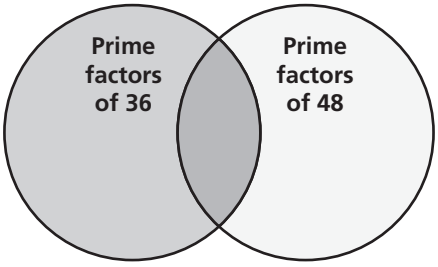
b.



3 ACTIVITY: Identifying Common Prime Factors

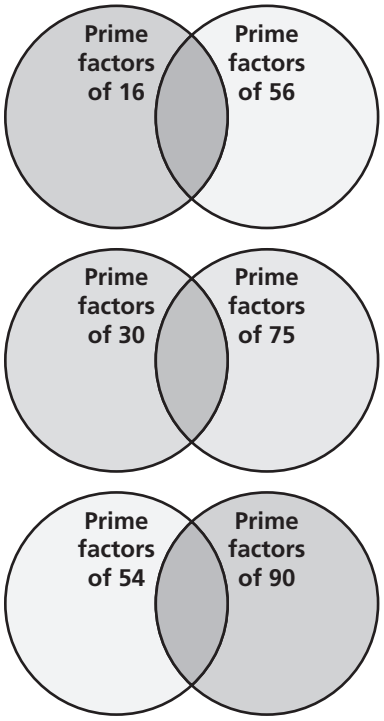
Work with a partner.

a. Write the prime factorizations of 36 and 48. Use the results to complete the Venn diagram.



1.5 Greatest Common Factor (continued)

b. Repeat part (a) for the remaining number pairs in Activity 1.



c. **STRUCTURE** Compare the numbers in the overlap of the Venn diagrams to your results in Activity 1. What conjecture can you make about the relationship between these numbers and your results in Activity 1?

What Is Your Answer?

4. **IN YOUR OWN WORDS** How can you find the greatest common factor of two numbers? Give examples to support your explanation.

5. Can you think of another way to find the greatest common factor of two or more numbers? Explain.

Name _____ Date _____

1.5 Practice

For use after Lesson 1.5

Find the GCF of the numbers using lists of factors.

1. 9, 15

2. 11, 19

3. 8, 28

4. 60, 70

5. 40, 56

6. 35, 72

Find the GCF of the numbers using prime factorizations.

7. 4, 10

8. 5, 11

9. 6, 8

10. 14, 42

11. 45, 63

12. 60, 90

13. You are making identical gift bags using 24 candles and 36 bottles of lotion. What is the greatest number of gift bags you can make with no items left over?

Name_____ Date _____

1.6 Least Common Multiple

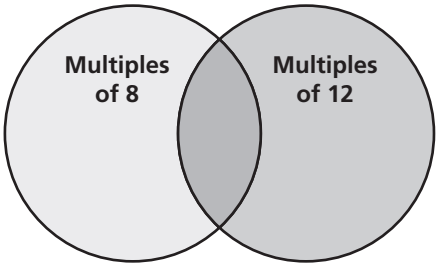
For use with Activity 1.6

Essential Question How can you find the least common multiple of two numbers?

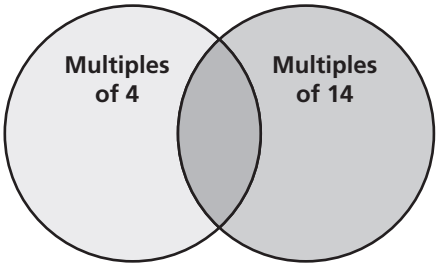
1 ACTIVITY: Identifying Common Multiples

Work with a partner. Using the first several multiples of each number, complete the Venn diagram. Identify any *common multiples* of the two numbers.

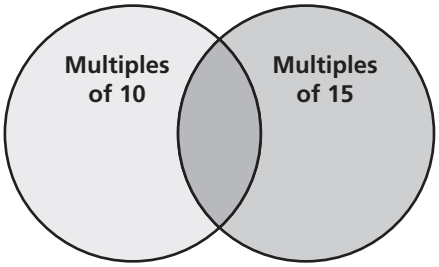
a. 8 and 12



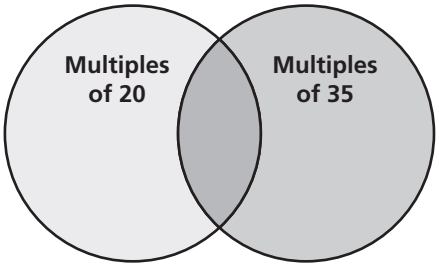
b. 4 and 14



c. 10 and 15



d. 20 and 35



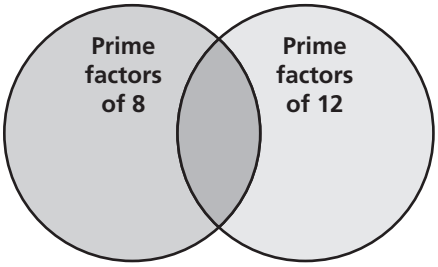
e. Look at the Venn diagrams in parts (a)–(d). Explain how to identify the *least common multiple* of each pair of numbers. Then circle it in each diagram.

Name _____ Date _____

1.6 Least Common Multiple (continued)

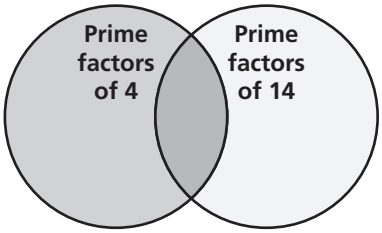
2 ACTIVITY: Interpreting a Venn Diagram of Prime Factors

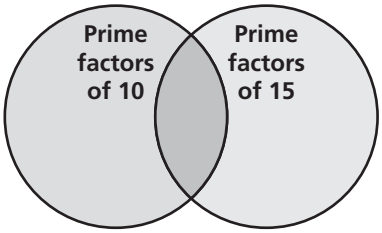
Work with a partner

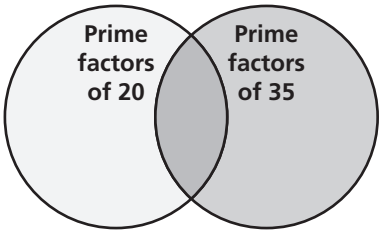


a. Write the prime factorizations of 8 and 12. Use the results to complete the Venn diagram.

b. Repeat part (a) for the remaining number pairs in Activity 1.







c. **STRUCTURE** Compare the numbers from each section of the Venn diagrams to your results in Activity 1. What conjecture can you make about the relationship between these numbers and your results in Activity 1?

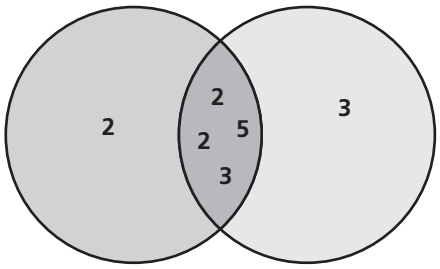
What Is Your Answer?

3. **IN YOUR OWN WORDS** How can you find the least common multiple of two numbers? Give examples to support your explanation.

Name_____ Date _____

1.6 Least Common Multiple (continued)

4. The Venn diagram shows the prime factors of two numbers. Use the diagram to do the following tasks.



a. Identify the two numbers.

b. Find the greatest common factor.

c. Find the least common multiple.

5. A student writes the prime factorizations of 8 and 12 in a table as shown. She claims she can use the table to find the greatest common factor and the least common multiple of 8 and 12. How is this possible?

8 =	2	2	2		
12 =	2	2		3	

6. Can you think of another way to find the least common multiple of two or more numbers? Explain.

Name _____ Date _____

1.6 Practice

For use after Lesson 1.6

Find the LCM of the numbers using lists of multiples.

1. 3, 8

2. 8, 14

3. 7, 21

4. 5, 11

5. 8, 20

6. 14, 20

Find the LCM of the numbers using prime factorizations.

7. 12, 36

8. 5, 12

9. 3, 17

10. 10, 12

11. 20, 30

12. 32, 40

13. A music store gives every 20th customer a $5 gift card. Every 50th customer gets a $10 gift card. Which customer will be the first to receive both types of gift cards?

Name_____ Date _____

Extension 1.6

Practice

For use after Extension 1.6

Use the LCD to rewrite the fractions with the same denominator.

1. $\frac{5}{6}, \frac{3}{10}$

2. $\frac{5}{9}, \frac{11}{12}$

Complete the statement using <, >, or =.

3. $\frac{3}{10} \_\_ \frac{4}{15}$

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

5. $\frac{1}{3} \_\_ \frac{4}{12}$

6. $\frac{1}{9} \_\_ \frac{2}{3}$

Add. Write the answer in simplest form.

7. $\frac{2}{3} + \frac{5}{12}$

8. $\frac{1}{2} + \frac{3}{8}$

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

10. $3\frac{4}{5} + 2\frac{1}{2}$

Name _____ Date _____

Extension 1.6 **Practice (continued)**

Subtract. Write the answer in simplest form.

11. $\frac{3}{4} - \frac{1}{2}$

12. $\frac{4}{5} - \frac{5}{12}$

13. $4\frac{6}{7} - \frac{1}{4}$

14. $2\frac{7}{9} - 2\frac{1}{3}$

15. A recipe calls for $\frac{3}{4}$ cup of vegetable broth. You have $\frac{2}{3}$ cup of vegetable broth. How much additional broth is needed for the recipe?

16. You have $2\frac{3}{4}$ pounds of taffy. You eat $\frac{1}{3}$ pound of taffy. How many pounds of taffy do you have left?