Chapter 7

Name _____

Factors, Multiples, and Number Patterns

Show What You Know

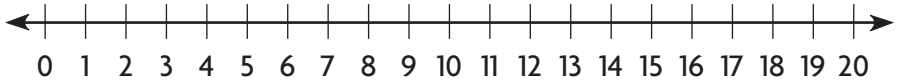
Skip Count
Skip count to find the unknown numbers.

1. Skip count by 3s.

3, _____, _____, _____

2. Skip count by 5s.

5, _____, _____, _____

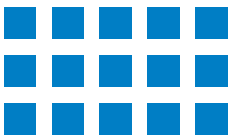


Arrays
Use the array to find the product.

3.

_____ rows of _____ = _____

4.



_____ rows of _____ = _____

Multiplication Facts
Find the product.

5. $4 \times 5 =$ _____

6. $9 \times 4 =$ _____

7. $6 \times 7 =$ _____

MATH in the Real World

Recycled plastic helps keep people warm. Some factories use recycled plastic, combined with other fabrics, to make winter jackets. A warehouse has 46 truckloads of recycled plastic and uses 8 truckloads each day. When there are fewer than 16 truckloads left, more plastic needs to be ordered. How many truckloads will be left after 2 days? after 3 days? When will more plastic need to be ordered?

Vocabulary Builder

Go Online For more help

Visualize It

Complete the flow map by using the words with a ✓.

Multiplying

What is it?	What are some examples?
_____ →	2 × 4 = ⑧
_____ →	②×④ = 8
_____ →	

Connect to Vocabulary

Review Words

- ✓ array
- common factor
- ✓ factor
- multiple
- ✓ product

Preview Words

- common multiple
- composite number
- divisible
- pattern
- prime number
- term

Understand Vocabulary

Complete the sentences by using preview words.

1. A number that is a multiple of two or more numbers is a _____.
2. A number that has exactly two factors, 1 and itself, is a _____.
3. A number that has more than two factors is a _____.
4. A number is _____ by another number if the quotient is a counting number and the remainder is 0.
5. An ordered set of numbers or objects is a _____.
6. Each number in a pattern is called a _____.

Name _____

Factors and Divisibility

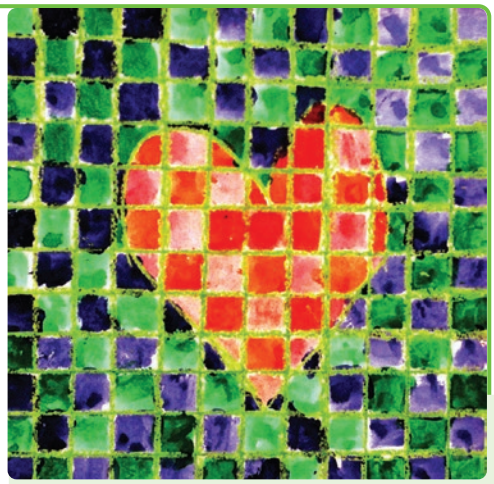
I Can determine if one number is a factor of another number.

Florida's B.E.S.T.

- **Algebraic Reasoning** 4.AR.3.1, 4.AR.1.1
- **Number Sense & Operations** 4.NSO.2.1
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

UNLOCK the Problem Real World

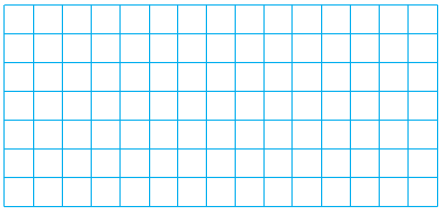
Students in Carlo's art class painted 32 square tiles for a mosaic. They will arrange the tiles to make a rectangle. Can the rectangle have 32 tiles arranged into 3 equal rows, without gaps or overlaps?



▲ Mosaics are decorative patterns made with pieces of glass or other materials.

One Way Draw a model.

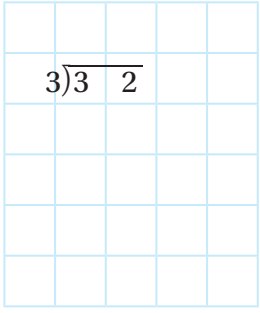
Think: Try to arrange the tiles into 3 equal rows to make a rectangle.



A rectangle _____ have 32 tiles arranged into 3 equal rows.

Another Way Use division.

If 3 is a factor of 32, then the unknown factor in $3 \times \square = 32$ is a whole number.



Think: Divide to see whether the unknown factor is a whole number.

Math Idea

A factor of a number divides the number evenly. This means the quotient is a whole number and the remainder is 0.

The unknown factor in $3 \times \square = 32$ _____ a whole number.

So, a rectangle _____ have 32 tiles arranged in 3 rows.

- Explain how you can tell if 4 is a factor of 30.

_____

_____

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How does the model relate to the quotient and remainder for 32 ÷ 3?

Divisibility Rules

Divisibility Rules A number is **divisible** by another number if the quotient is a counting number and the remainder is 0.

Some numbers have a divisibility rule. You can use a divisibility rule to tell whether one number is a factor of another.

Divisibility Rules	
Number	**Divisibility Rule**
2	The number is even.
3	The sum of the digits is divisible by 3.
5	The last digit is 0 or 5.
6	The number is even and divisible by 3.
9	The sum of the digits is divisible by 9.

Is 6 a factor of 72?

Think: If 72 is divisible by 6, then 6 is a factor of 72.

Test for divisibility by 6:

Is 72 even? _____

What is the sum of the digits of 72?

_____ + _____ = _____

Is the sum of the digits divisible by 3?

_____

72 _____ divisible by 6

So, 6 is a factor of 72.

Try This! List all the factor pairs for 72 in the table.

Complete the table.

Factors of 72	
$1 \times 72 = 72$	1, 72
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____

Show your work.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

How are divisibility and factors related? Explain.

- How did you check if 7 is a factor of 72? Explain.

_____

_____

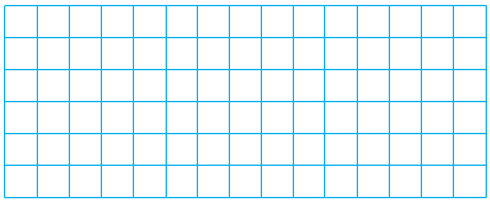
Name _____

Share and Show

Math Board

1. Is 4 a factor of 28? Draw a model to help.

Think: Can you make a rectangle with 28 squares in 4 equal rows?



4 _____ a factor of 28.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

If 3 is a factor of a number, is 6 always a factor of the number? If not, give an example.

Is 5 a factor of the number? Write *yes* or *no*.

2. 27 _____

3. 30 _____

4. 36 _____

5. 53 _____

On Your Own

Is 9 a factor of the number? Write *yes* or *no*.

6. 54 _____

7. 63 _____

8. 67 _____

9. 93 _____

List all the factor pairs in the table.

10.

Factors of 24	
____ × ____ = ____	____, ____
____ × ____ = ____	____, ____
____ × ____ = ____	____, ____
____ × ____ = ____	____, ____

11.

Factors of 39	
____ × ____ = ____	____, ____
____ × ____ = ____	____, ____

List all the factor pairs for the number. Make a table to help.

12. 56 _____

13. 64 _____

Problem Solving · Applications

Use the table for Problems 14–15.

14. Dirk bought a set of stamps. The number of stamps in the set he bought is divisible by 2, 3, 5, 6, and 9. Which set is it?

MATH on the Spot

Stamps Sets	
Country	**Number of stamps**
Germany	90
Sweden	78
Japan	63
Canada	25

15. Geri wants to put 6 stamps on some pages in her stamp book and 9 stamps on other pages. Explain how she could do this with the stamp set for Sweden.

16. MTR George said if 2 and 4 are factors of a number, then 8 is a factor of the number. Is he correct? Explain.

17. Classify the numbers. Some numbers may belong in more than one box.

27 45 54 72 81 84

Divisible by 5 and 9	Divisible by 3 and 9	Divisible by 2 and 6

Show the Math

Demonstrate Your Thinking

Name _____

Factors and Divisibility

Go Online
Interactive Examples

Is 6 a factor of the number? Write *yes* or *no*.

1. 36

Think: $6 \times 6 = 36$

yes

2. 56 _____

3. 42 _____

4. 66 _____

Is 5 a factor of the number? Write *yes* or *no*.

5. 38 _____

6. 45 _____

7. 60 _____

8. 39 _____

List all the factor pairs in the table.

9.

Factors of 12	
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____

10.

Factors of 25	
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____

11. List all the factor pairs for 48. Make a table to help.

_____

_____

Problem Solving Real World

12. Bryson buys a bag of 64 plastic miniature dinosaurs. Could he distribute them equally into six storage containers and not have any left over? Explain.

_____

13. WRITE Math Find the factors of 42. Show and explain your work, and list the factor pairs in a table.

_____

Lesson Check

14. Write three numbers greater than 20 that have 9 as a factor.

15. What digit(s) can be in the ones place of a number that has 5 as a factor?

Spiral Review

16. Write an expression that can be used to find 4×275 using mental math and properties of numbers.

17. Jack broke apart 5×216 as $(5 \times 200) + (5 \times 16)$ to multiply mentally. What strategy did Jack use?

18. Jay has $55. She earns $67 by doing chores. How much money does Jay have now?

19. Trina has 72 collector's stamps. She puts 43 of the stamps into a stamp book. How many stamps are left?

Name _____

Factors and Multiples

I Can recognize how factors and multiples are related.

Florida's B.E.S.T.

- **Algebraic Reasoning** 4.AR.3.1, 4.AR.1.1
- **Number Sense & Operations** 4.NSO.2.1
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

UNLOCK the Problem Real World

Toy animals are sold in sets of 3, 5, 10, and 12. Rafa wants to make a display with 3 animals in each row. Which sets could he buy, if he wants to display all of the animals?

- How many animals will be in each row?

_____

- How many animals are sold in each set?

_____

The product of two numbers is a multiple of each number. Factors and multiples are related.

$$3 \times 4 = 12$$

↑ factor, ↑ factor, ↑ multiple of 3, multiple of 4

One Way Find factors.

Tell whether 3 is a factor of each number.

Think: If a number is divisible by 3, then 3 is a factor of the number.

Is 3 a factor of 3? _____

Is 3 a factor of 5? _____

Is 3 a factor of 10? _____

Is 3 a factor of 12? _____

3 is a factor of _____ and _____.

Another Way Find multiples.

Multiply and make a list. 3, _____, _____, _____, _____, ...

1×3 2×3 3×3 4×3 5×3

_____ and _____ are multiples of 3.

So, Rafa could buy sets of _____ and _____ toy animals.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how you can use what you know about factors to determine whether one number is a multiple of another number.

Common Multiples

A **common multiple** is a multiple that is shared by two or more numbers.

Example

Find common multiples.

Tony works every 3 days and Svetlana works every 5 days. If Tony works June 3 and Svetlana works June 5, on what days in June will they work together?

Circle multiples of 3. Draw a box around multiples of 5.

June						
Sun	**Mon**	**Tue**	**Wed**	**Thu**	**Fri**	**Sat**
	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				

Think: The common multiples have both a circle and a box.

The common multiples are _____ and _____.

So, Tony and Svetlana will work together on June _____ and June _____.

Share and Show

Math Board

1. Multiply to list the next five multiples of 4.

4, _____, _____, _____, _____, _____

1×4

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Discuss how factors and multiples are related. Give an example.

Is the number a factor of 12? Write *yes* or *no*.

2. 3 _____

3. 6 _____

4. 16 _____

5. 18 _____

Is the number a multiple of 6? Write *yes* or *no*.

6. 3 _____

7. 6 _____

8. 16 _____

9. 18 _____

Name _____

On Your Own

Is the number a multiple of 3? Write *yes* or *no*.

10. 4 _____

11. 8 _____

12. 24 _____

13. 38 _____

14. List the next nine multiples of each number. Find the common multiples.

Multiples of 2: 2, _____

Multiples of 8: 8, _____

Common multiples: _____

MTR Find the unknown number.

15. 12, 24, 36, _____

16. 25, 50, 75, 100, _____

Tell whether 20 is a factor and or multiple of the number. Write *factor, multiple,* or *neither*.

17. 10 _____

18. 20 _____

19. 30 _____

Write *true* or *false*. Explain.

20. Every whole number is a multiple of 1.

_____

_____

21. Every whole number is a factor of 1.

_____

_____

22. Julio wears a blue shirt every 3 days. Larry wears a blue shirt every 4 days. On April 12, both Julio and Larry wore a blue shirt. What is the next date that they will both wear a blue shirt?

_____

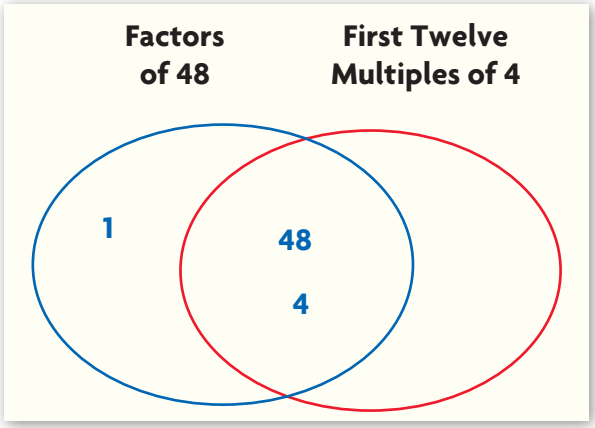
April

Sun	Mon	Tue	Wed	Thu	Fri	Sat
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					

MATH on the Spot

Problem Solving · Applications

Complete the Venn diagram. Then use it for Problems 23–25.



23. What multiples of 4 are not factors of 48?

24. What factors of 48 are multiples of 4?

25. Look back at Problem 24. Write a similar problem by changing the numbers. Then solve.

26. Kia paid $10 for two charms. The price of each charm was a multiple of $2. What are the possible prices of the charms?

27. MTR The answer is 9, 18, 27, 36, 45. What is the question?

28. WRITE *Math* How do you know whether a number is a multiple of another number?

29. For problems 29a–29e, select True or False for each statement.

29a. The number 45 is a multiple of 9. ○ True ○ False

29b. The number 4 is a multiple of 16. ○ True ○ False

29c. The number 33 is a multiple of 3. ○ True ○ False

29d. The number 4 is a factor of 28. ○ True ○ False

29e. The number 32 is a factor of 8. ○ True ○ False

Show the Math

Demonstrate Your Thinking

Name _____

Factors and Multiples

Go Online
Interactive Examples

Is the number a multiple of 8? Write *yes* or *no*.

1. 4

Think: Since $4 \times 2 = 8$, 4 is a *factor* of 8, not a multiple of 8.

no

2. 8 _____

3. 20 _____

4. 40 _____

List the next nine multiples of each number.
Find the common multiples.

5. Multiples of 4: 4, _____

Multiples of 7: 7, _____

Common multiples: _____

6. Multiples of 3: 3, _____

Multiples of 9: 9, _____

Common multiples: _____

Tell whether 24 is a factor or multiple of the number.
Write *factor*, *multiple*, or *neither*.

7. 6 _____

8. 36 _____

9. 48 _____

Problem Solving Real World

10. Duy paid $12 for two magazines. The cost of each magazine was a multiple of $3. What are the possible prices of the magazines?

_____

11. Nhi bought some shirts for $12 each. Marge bought some shirts for $8 each. The girls spent the same amount of money on shirts. What is the least amount they could have spent?

_____

12. WRITE Math Write a word problem that can be solved by finding the numbers that have 11 as a factor.

_____

Lesson Check

13. Of the numbers listed below, which are not multiples of 4?

2, 4, 7, 8, 12, 15, 19, 24, 34

14. What number is a common multiple of 6 and 9?

Spiral Review

15. Jenny has 50 square tiles. She arranges the tiles into a rectangular array of 4 rows. How many tiles will be left over?

16. Jerome added two numbers. The sum was 83. One of the numbers was 45. What was the other number?

17. There are 18 rows of seats in the auditorium. There are 24 seats in each row. How many seats are in the auditorium?

18. The population of Riverdale is 6,735. What is the value of the 7 in the number 6,735?

Name _____

Prime and Composite Numbers

Florida's B.E.S.T.

- **Algebraic Reasoning** 4.AR.3.1
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

I Can determine whether a whole number is prime or composite.

UNLOCK the Problem Real World

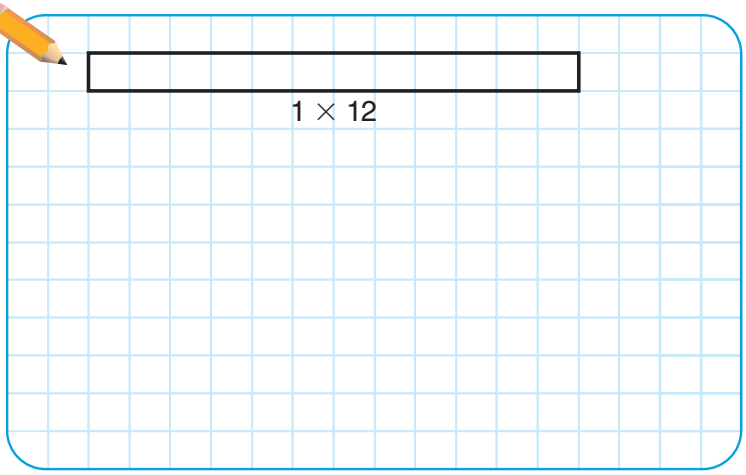
Students are arranging square tables to make one larger, rectangular table. The students want to have several ways to arrange the tables. Should they use 12 or 13 tables?

- What are the factors of 12?

_____

Use a grid to show all the possible arrangements of 12 and 13 tables.

Draw all of the possible arrangements of 12 tables and 13 tables. Label each drawing with the factors modeled.



Common Error

The same factors in a different order should be counted only once. For example, 3 × 4 and 4 × 3 are the same factor pair.

So, there are more ways to arrange _____ tables.

Math Talk

MTR 4.1 Engage in discussions on mathematical thinking.

Explain how knowing whether 12 and 13 are prime or composite could have helped you solve the problem above.

- A **prime number** is a whole number greater than 1 that has exactly two factors, 1 and itself.
- A **composite number** is a whole number greater than 1 that has more than two factors.

Factors of 12: _____, _____, _____, _____, _____, _____

Factors of 13: _____, _____

12 is a _____ number, and 13 is a _____ number.

Divisibility You can use divisibility rules to help tell whether a number is prime or composite. If a number is divisible by any number other than 1 and itself, then the number is composite.

Tell whether 51 is *prime* or *composite*.

Is 51 divisible by 2?

_____

Is 51 divisible by 3?

_____

Think: 51 is divisible by a number other than 1 and 51.
51 has more than two factors.

So, 51 is _____.

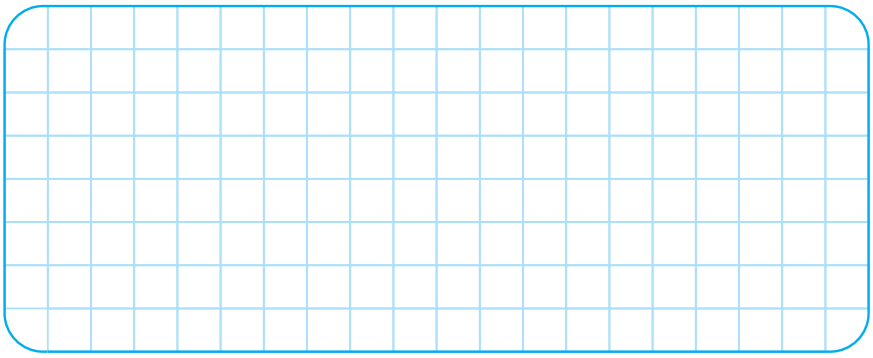
Math Idea

The number 1 is neither prime nor composite, since it has only one factor: 1.

Share and Show

Math Board

1. Use the grid to model the factors of 18. Tell whether 18 is *prime* or *composite*.



Factors of 18: _____, _____, _____, _____, _____, _____

Think: 18 has more than two factors.

So, 18 is _____.

Math Talk

MTR 5.1 Use patterns and structure.

Is the product of two prime numbers prime or composite? Explain.

Tell whether the number is *prime* or *composite*.

2. 11
Think: Does 11 have other factors besides 1 and itself?
_____

3. 73
_____

✓ **4.** 69
_____

✓ **5.** 42
_____

Name _____

On Your Own

Tell whether the number is *prime* or *composite*.

6. 18 _____

7. 49 _____

8. 29 _____

9. 64 _____

10. 33 _____

11. 89 _____

12. 52 _____

13. 76 _____

Write *true* or *false* for each statement. Explain or give an example to support your answer.

14. Only odd numbers are prime numbers.

_____

_____

15. A composite number cannot have three factors.

MATH on the Spot

_____

_____

Problem Solving · Applications

Real World

16. I am a number between 60 and 100. My ones digit is two less than my tens digit. I am a prime number. What number am I?

_____

17. Name a 2-digit odd number that is prime. Name a 2-digit odd number that is composite.

_____

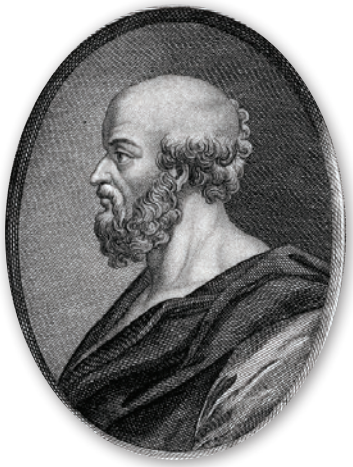
_____

18. Choose the words that correctly complete the sentence.

The number 9 is [prime / composite] because it has [exactly / more than] two factors.

Connect to Social Studies

The Sieve of Eratosthenes



Eratosthenes was a Greek mathematician who lived more than 2,200 years ago. He invented a method of finding prime numbers, which is now called the Sieve of Eratosthenes.

19. Follow the steps below to circle all prime numbers less than 100. Then list the prime numbers.

STEP 1

Cross out 1, since 1 is not prime

STEP 2

Circle 2, since it is prime. Cross out all other multiples of 2.

STEP 3

Circle the next number that is not crossed out. This number is prime. Cross out all the multiples of this number.

STEP 4

Repeat Step 3 until every number is either circled or crossed out.

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
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

So, the prime numbers less than 100 are

_____

_____

_____

_____

_____

_____

_____

_____

20. MTR Explain why the multiples of any number other than 1 are not prime numbers.

_____

Name _____

Prime and Composite Numbers

Go Online
Interactive Examples

Tell whether the number is *prime* or *composite*.

1. 47

Think: Does 47 have other factors besides 1 and itself?

prime

2. 68

3. 52

4. 63

5. 75

6. 31

7. 77

8. 59

9. 87

Problem Solving Real World

10. Tai wrote the number 85 on the board. Is 85 prime or composite? Explain.

11. Yuki says that 43 is a 2-digit odd number that is composite. Is she correct? Explain.

12. WRITE Math Describe how to decide if 94 is a prime number or composite number.

Lesson Check

13. Is the number 5 prime, composite, or neither?

14. Is the number 1 prime, composite, or neither?

Spiral Review

15. A recipe for a vegetable dish contains a total of 924 calories. The dish serves 6 people. How many calories are in each serving?

16. A store clerk has 45 shirts to pack in boxes. Each box holds 6 shirts. What is the fewest boxes the clerk will need to pack all the shirts?

17. A total of 152,909 people visited a national park during one weekend. What is this number rounded to the nearest hundred thousand?

18. What is the word form of the number 602,107?

Name _____

Number Patterns

I Can make, describe, and extend patterns.

Florida's B.E.S.T.

- **Algebraic Reasoning** 4.AR.3.1, 4.AR.3.2
- **Mathematical Thinking & Reasoning** MTR.2.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.7.1

UNLOCK the Problem Real World

Miksa is making a pattern for a quilt. The pattern shows 40 squares. Every fourth square is blue. How many blue squares are in the pattern?

A **pattern** is an ordered set of numbers or objects. Each number or object in the pattern is called a **term**.

Activity Find a pattern.

Materials ■ color pencils

Shade the squares that are blue.

	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	

Which squares are blue? _____

So, there are _____ blue squares in the pattern.

Math Talk

MTR 5.1 Use patterns and structure.

Describe another number pattern in Miksa's quilt.

1. What patterns do you see in the arrangement of the blue squares?

_____

_____

2. What patterns do you see in the numbers of the blue squares?

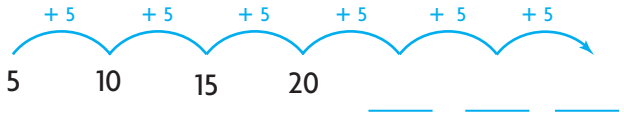
_____

_____

Example Extend a pattern.

The rule for a pattern is *add* 5. The first term in the pattern is 5.

A **Use the rule to extend the pattern.**



5, 10, 15, 20, _____, _____, _____, _____, _____, …

B **Describe other patterns in the numbers.**

What do you notice about the digits in the ones place?

_____

_____

Describe the pattern using the words *odd* and *even*.

_____

_____

Describe the pattern using the word *multiples*.

_____

_____

Try This! Make a pattern.

To make a pattern, you need the first term and the rule. The rule for the pattern is *add* 3, *subtract* 1. The first term in the pattern is 6.

Describe another pattern in the numbers.

_____

_____

_____

Name _____

Share and Show

Math Board

Math Talk

MTR 5.1 Use patterns and structure.

How do you use the first term in a pattern to find the next term?

1. Describe a pattern.

   4, 8, 16, 32, 64, ...

   Rule: _____.

2. Use the rule to make the pattern.

   Rule: Subtract 10. First Term: 100

   100, _____, _____, _____, _____, ...

3. Identify a rule. Use it to extend the pattern.

   12, 18, 24, 30, _____, _____, _____, _____

On Your Own

4. Describe a pattern.

   3, 10, 17, 24, 31, 38, 45, ...

   Rule: _____.

5. Use the rule to make the pattern.

   Rule: Add 2, add 1. First Term: 12

   12, _____, _____, _____, _____, _____, _____, ...

6. Identify a rule. Use it to extend the pattern.

   56, 51, 46, 41, 36, _____, _____, _____, _____

7. MTR Zuza likes to collect stickers, but she also likes to give them away. Currently, Zuza has 87 stickers in her collection. If Zuza collects 5 new stickers each week and gives away 3 stickers each week, how many stickers will Zuza have in her collection after 5 weeks?

   _____

Problem Solving · Applications

8. John is saving for his trip to see the Alamo. He started with $24 in his savings account. Every week he earns $15 for baby-sitting. Out of that, he spends $8 and saves the rest. John uses the rule *add 7* to find out how much money he has at the end of each week. What are the first 8 numbers in the pattern?

MATH on the Spot

_____

9. Draw a check under the column that describes the number.

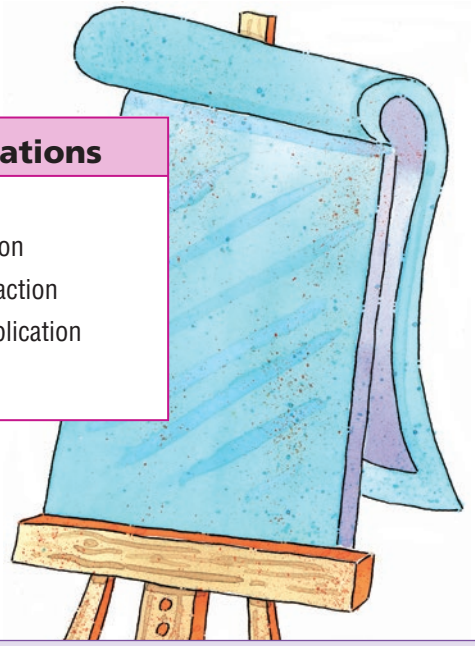
	Prime	Composite
81		
29		
31		
62		

Pose a Problem

10. An activity at the Math Fair shows two charts.

Numbers
2
3
5
6
10

Operations
addition
subtraction
multiplication



Use at least two of the numbers and an operation from the charts to write a pattern problem. Include the first five terms of your pattern in the solution to your problem.

Pose a problem.	Solve your problem.

- Describe other patterns in the terms you wrote.

_____

Name _____

Number Patterns

Go Online
Interactive Examples

Use the rule to extend the pattern.

1. Rule: *Add 8.* First term: 5

Think: Add 8.

5, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, _____, ...

2. Describe a pattern.

4, 19, 9, 24, 14, 29, 19, 34, 24, 39, 29, 44, ...

Rule: _____.

3. Use the rule to make the pattern.

Rule: Subtract 7. First Term: 95

95, _____, _____, _____, _____, _____, _____, ...

4. Identify a rule. Use it to extend the pattern.

54, 63, 72, _____, _____, _____, _____

Problem Solving Real World

5. Bella is making a bead necklace. She strings 1 white bead, then 3 blue beads, then 1 white bead, and so on. Write the numbers for the first eight beads that are white. What is a rule for the pattern?

_____

_____

6. An artist is arranging tiles in rows to decorate a wall. Each new row has 2 fewer tiles than the row below it. If the first row has 23 tiles, how many tiles will be in the seventh row?

_____

7. WRITE Math Give an example of a rule for a pattern. List a set of numbers that fit the pattern.

_____

Lesson Check

8. The rule for a pattern is *add 6*. The first term is 5. Write the first five terms in the pattern.

9. What are the next two terms in the pattern 3, 6, 5, 10, 9, 18, 17, . . .?

Spiral Review

10. To win a game, Idris needs to score 2,000 points. So far, he has scored 837 points. How many more points does Idris need to score?

11. Lia wants to use mental math to find 7×53. Write an expression she could use.

12. Pat listed all the numbers that have 15 as a multiple. Write the numbers in Pat's list.

13. Complete the following sentence using the correct term.

14 is a _____ of 7 and 14.

Name _____

Chapter 7

Chapter Review

1. List all the factors of the number.

14: _____

2. Select the numbers that are a factor of 12. Mark all that apply.

(A) 12
(B) 24
(C) 6
(D) 2
(E) 3
(F) 7

3. Jackson was making a poster for his room. He arranged 50 trading cards in the shape of a rectangle on the poster. For Problems 3a–3e, choose Yes or No to tell whether a possible arrangement of cards is shown.

3a.	5 rows of 10 cards	○ Yes	○ No
3b.	25 rows of 25 cards	○ Yes	○ No
3c.	25 rows of 2 cards	○ Yes	○ No
3d.	50 rows of 1 card	○ Yes	○ No
3e.	45 rows of 5 cards	○ Yes	○ No

4. List all the factor pairs in the table.

Factors of 48	
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____
_____ × _____ = _____	_____, _____

5. Classify the numbers. Some numbers may belong in more than one box.

54	72	84	90	96

Divisible by 5 and 9	Divisible by 6 and 9	Divisible by 2 and 6

6. Write the rule shown by the pattern in the numbers.
6, 10, 14, 18, 22, 26, 30, . . .

Rule: _____

7. Brady has a card collection with 64 basketball cards, 32 football cards, and 24 baseball cards. He wants to arrange the cards in equal piles, with only one type of card in each pile. How many cards can he put in each pile? Mark all that apply.

(A) 1 (B) 2 (C) 3 (D) 4 (E) 8 (F) 32

8. The Garden Club is designing a garden with 24 cosmos, 32 pansies, and 36 marigolds. Each row will have only one type of plant. Juan says he can put 6 plants in each row. He listed the factors of 24, 32, and 36 below to support his reasoning.

24: 1, 2, 3, 4, 6, 8, 12, 24

32: 1, 2, 4, 6, 9, 16, 32

36: 1, 2, 3, 4, 6, 8, 12, 18, 36

Is he correct? Explain your answer. If his reasoning is incorrect, explain how he should have found the answer.

Name _____

9. The number of pieces of art at a museum is shown in the table.

Art	
Type of Art	**Number of Pieces**
Oil paintings	30
Photographs	24
Sketches	21

Part A

The museum is hosting a show in July that features the oil paintings by different artists. All artists show the same number of paintings, and each will show more than 1 painting. How many artists could be featured in the show?

_____ artists

Part B

The museum wants to display all the art pieces in rows. Each row has the same number of pieces and the same type of art. How many pieces could be in each row? Explain how you found your answer.

10. Charles was skip counting at the Math Club meeting. He counted 8, 16, 24, 32, 40, and 48. Extend the pattern by three more numbers.

_____

11. Sofia wrote the number 40. If her rule is *add* 7, what is the fourth number in Sofia's pattern? Do you see another number pattern?

12. For Problems 12a–12e, select True or False for each statement.

12a.	The number 36 is a multiple of 9.	○ True	○ False
12b.	The number 3 is a multiple of 9.	○ True	○ False
12c.	The number 54 is a multiple of 9.	○ True	○ False
12d.	The number 3 is a factor of 9.	○ True	○ False
12e.	The number 27 is a factor of 9.	○ True	○ False

13. What multiple of 7 is also a factor of 7?

_____

14. Manny makes dinner using 1 box of pasta and 1 jar of sauce. If pasta is sold in packages of 6 boxes and sauce is sold in packages of 3 jars, what is the least number of dinners that Manny can make without any supplies left over?

_____ dinners

15. Serena has several packages of raisins. Each package contains 3 boxes of raisins. Which could be the number of boxes of raisins Serena has? Mark all that apply.

Ⓐ 9 Ⓑ 18 Ⓒ 23 Ⓓ 27 Ⓔ 32

16. Choose the words that make the sentence true.

The number 7 is [prime / composite] because it has [exactly / more than] two factors.

Name _____

17. Li wrote the following riddle: I am a number between 20 and 60. My ones digit is three more than my tens digit. I am a prime number.

Part A

What number does Li's riddle describe? Explain.

Part B

Li's friend Marco guessed that her riddle was about the number 41. Why can't 41 be the answer to Li's riddle? Explain.

18. Classify the numbers as prime or composite.

Prime	Composite

37 65 71 82

19. Erica knits 18 squares on Monday. Each day, she knits 7 more squares than the day before. How many squares does Erica knit on Friday?

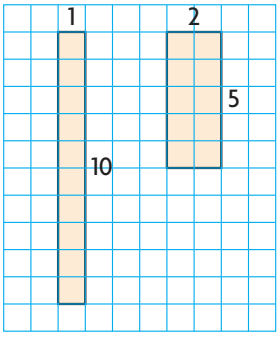
_____ squares

20. Use the rule to write the first five terms of the pattern.

Rule: Add 10, subtract 5 First term: 11

_____

21. Elina had 10 tiles to arrange in a rectangular design. She drew a model of the rectangles she could make with the 10 tiles.



Part A

How does Elina's drawing show that the number 10 is a composite number?

Part B

Suppose Elina used 15 tiles to make the rectangular design. How many different rectangles could she make with the 15 tiles? Write a list or draw a picture to show the number and dimensions of the rectangles she could make.

Part C

Elina's friend Ahmad said that he could make more rectangles with 24 tiles than with Elina's 10 tiles. Is Ahmad correct? Explain.