

Name _____

Patterns in Measurement Units

Essential Question How can you use patterns to write number pairs for measurement units?

CONNECT The table at the right relates yards and feet. You can think of the numbers in the table as number pairs. 1 and 3, 2 and 6, 3 and 9, 4 and 12, and 5 and 15 are number pairs.

The number pairs show the relationship between yards and feet. 1 yard is equal to 3 feet, 2 yards is equal to 6 feet, 3 yards is equal to 9 feet, and so on.



Measurement and Data—
4.MD.A.1

MATHEMATICAL PRACTICES

MP4, MP5, MP7

Yards	Feet
1	3
2	6
3	9
4	12
5	15



Unlock the Problem

Lillian made the table below to relate two units of time. What units of time does the pattern in the table show?

Activity Use the relationship between the number pairs to label the columns of the table.

1	7
2	14
3	21
4	28
5	35

- List the number pairs.

- Describe the relationship between the numbers in each pair.

- Label the columns of the table.

Think: What unit of time is 7 times as great as another unit?

Math Talk

MATHEMATICAL PRACTICES 7

Identify Relationships
Look at each number pair in the table. Could you change the order of the numbers in the number pairs? Explain why or why not.

Try This! Jasper made the table below to relate two customary units of liquid volume. What customary units of liquid volume does the pattern in the table show?

- List the number pairs.

- Describe the relationship between the numbers in each pair.

_____	_____
1	4
2	8
3	12
4	16
5	20

- Label the columns of the table.

Think: What customary unit of liquid volume is 4 times as great as another unit?

- What other units could you have used to label the columns of the table above? Explain.

Share and Show



- The table shows a pattern for two units of time. Label the columns of the table with the units of time.

Think: What unit of time is 24 times as great as another unit?

_____	_____
1	24
2	48
3	72
4	96
5	120



MATHEMATICAL PRACTICES 6

Explain how you labeled the columns of the table.

Name _____

Each table shows a pattern for two customary units. Label the columns of the table.



2.

_____	_____
1	2
2	4
3	6
4	8
5	10



3.

_____	_____
1	16
2	32
3	48
4	64
5	80

On Your Own

Each table shows a pattern for two customary units. Label the columns of the table.

4.

_____	_____
1	36
2	72
3	108
4	144
5	180

5.

_____	_____
1	12
2	24
3	36
4	48
5	60

Each table shows a pattern for two metric units of length.

Label the columns of the table.

6.

_____	_____
1	10
2	20
3	30
4	40
5	50

7.

_____	_____
1	100
2	200
3	300
4	400
5	500

8.



List the number pairs for the table in Exercise 6.

Describe the relationship between the numbers in each pair.

Problem Solving • Applications

9. **What's the Error?** Maria wrote *Weeks* as the label for the first column of the table and *Years* as the label for the second column. Describe her error.

?	?
1	52
2	104
3	156
4	208
5	260

10. **MATHEMATICAL PRACTICE 3** **Verify the Reasoning of Others** The table shows a pattern for two metric units. Lou labels the columns *Meters* and *Millimeters*. Zayna labels them *Liters* and *Milliliters*. Whose answer makes sense? Whose answer is nonsense? Explain.

?	?
1	1,000
2	2,000
3	3,000
4	4,000
5	5,000

11. **THINK SMARTER** Look at the following number pairs: 1 and 365, 2 and 730, 3 and 1,095. The number pairs describe the relationship between which two units of time? Explain.



12. **THINK SMARTER** The tables show patterns for some units of measurement. Write the correct labels in each table.

Ounces

Days

Feet

Gallons

Hours

Inches

Pounds

Quarts

_____	_____
1	12
2	24
3	36
4	48

_____	_____
1	24
2	48
3	72
4	96

_____	_____
1	4
2	8
3	12
4	16

Name _____

Patterns in Measurement Units



COMMON CORE STANDARD—4.MD.A.1
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

Each table shows a pattern for two customary units of time, liquid volume, or weight. Label the columns of the table.

1.

Gallons	Quarts
1	4
2	8
3	12
4	16
5	20

2.

1	2,000
2	4,000
3	6,000
4	8,000
5	10,000

3.

1	2
2	4
3	6
4	8
5	10

4.

1	60
2	120
3	180
4	240
5	300

Problem Solving



Use the table for 5.

5. Marguerite made the table to compare two metric measures of length. Name a pair of units Marguerite could be comparing.

?	?
1	10
2	20
3	30
4	40
5	50

6. **WRITE** *Math* Draw a table to represent months and years. Explain how you labeled each column.

Lesson Check (4.MD.A.1)

1. Joanne made a table to relate two units of measure. The number pairs in her table are 1 and 16, 2 and 32, 3 and 48, 4 and 64. What are the best labels for Joanne's table?

2. Cade made a table to relate two units of time. The number pairs in his table are 1 and 24, 2 and 48, 3 and 72, 4 and 96. What are the best labels for Cade's table?

Spiral Review (4.NF.C.6, 4.MD.A.1, 4.MD.A.2, 4.MD.C.5a)

3. Anita has 2 quarters, 1 nickel, and 4 pennies. Write Anita's total amount as a fraction of a dollar.

4. The minute hand of a clock moves from 12 to 6. What describes the turn the minute hand makes?

5. Roderick has a dog that has a mass of 9 kilograms. What is the mass of the dog in grams?

6. Kari mixed 3 gallons 2 quarts of lemon-lime drink with 2 gallons 3 quarts of pink lemonade to make punch. How much more lemon-lime drink did Kari use than pink lemonade?

