

Name \_\_\_\_\_

## Number Patterns

**Essential Question** How can you use multiplication to describe a pattern?

### UNLOCK the Problem REAL WORLD

You know how to use a rule and a first term to write a sequence. Now, you will describe a sequence using a rule.

#### Describe a pattern.

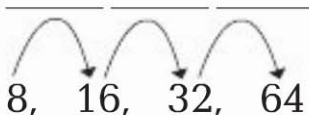
A scientist counts the number of lily pads in a pond each day. She records the number of lily pads in the table below. How many lily pads will be in the pond on days 5 and 6?

Day	1	2	3	4
Lilly Pads	8	16	32	64

**STEP 1** Describe the sequence.

**THINK:** How do I get from one term to the next?

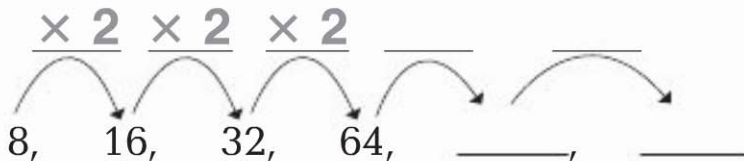
Try multiplying by 2 since  $8 \times 2 = 16$ .



Write a rule to describe the number of lily pads in the pond.

**RULE:** \_\_\_\_\_.

**STEP 2** Find the next two terms in the sequence.



So, there will be \_\_\_\_\_ lily pads on day 5 and \_\_\_\_\_ lily pads on day 6.

- Do the numbers in the sequence increase or decrease?

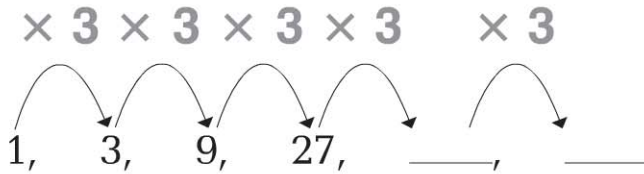
- Underline the information you need to find.

**Math Talk** Explain how you know the rule isn't add 8.

## Share and Show



1. Find the next two numbers in the pattern below.



Describe the pattern. Then find the next two numbers in the pattern.

2. 1, 2, 4, 8, \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_

3. 7, 14, 28, 56, \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_

## On Your Own

Describe the pattern. Then find the next two numbers in the pattern.

4. 1, 4, 16, 64, \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_

5. 2, 6, 18, 54, \_\_\_\_\_, \_\_\_\_\_

\_\_\_\_\_

Determine the pattern and use it to fill in the blanks.

6. 1, 5, 25, \_\_\_\_\_, 625

7. 3, 6, \_\_\_\_\_, 24, \_\_\_\_\_

8. 2, \_\_\_\_\_, 32, \_\_\_\_\_, 512

## Problem Solving



9. A clothing store starts selling a new type of sneaker. The table shows the number of pairs of sneakers sold in the first four weeks. If the pattern continues, how many pairs of sneakers will the store sell in weeks 5 and 6? **Explain.**

Week	1	2	3	4
Pairs Sold	5	10	20	40

\_\_\_\_\_

\_\_\_\_\_