

# Eureka Math

## 3rd Grade Module 3 Lesson 16

At the request of elementary teachers, a team of Bethel & Sumner educators met as a committee to create Eureka slideshow presentations. These presentations are not meant as a script, nor are they required to be used. Please customize as needed. Thank you to the many educators who contributed to this project!

Directions for customizing presentations are available on the next slide.



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**Screen A**

ReadyGEN™ in Action

3<sup>rd</sup> Grade  
Unit 3, Module A  
Lesson 1

“pop-out”

**Screen B**

Gr3(2) U3MAL1 Sample Lesson.pptx

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ReadyGEN™ in Action

3<sup>rd</sup> Grade  
Unit 3, Module A  
Lesson 1

# Icons



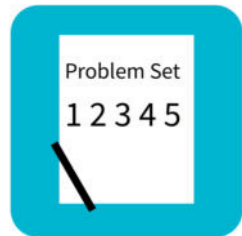
Read, Draw, Write



Learning Target



Personal White Board



Problem Set



Manipulatives Needed



Fluency



Think Pair Share



Whole Class



Individual



Partner



Small Group



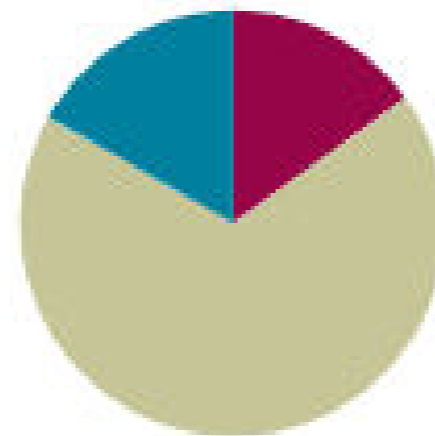
Small Group Time

## Lesson 16

Objective: Reason about and explain arithmetic patterns using units of 0 and 1 as they relate to multiplication and division.

### Suggested Lesson Structure

■ Fluency Practice	(9 minutes)
■ Concept Development	(41 minutes)
■ Student Debrief	(10 minutes)
<b>Total Time</b>	<b>(60 minutes)</b>





**I can reason and explain  
arithmetic patterns  
using units of 0 and 1  
as they relate to  
multiplication and division.**



# Fluency Practice

## Sprint

A STORY OF UNITS

Lesson 16 Sprint

3•3

**A**

Number Correct: \_\_\_\_\_

Multiply or divide by 9

1.	$2 \times 9 =$	
2.	$3 \times 9 =$	
3.	$4 \times 9 =$	
4.	$5 \times 9 =$	
5.	$1 \times 9 =$	
6.	$18 \div 9 =$	
7.	$27 \div 9 =$	

23.	_____ $\times 9 = 90$	
24.	_____ $\times 9 = 18$	
25.	_____ $\times 9 = 27$	
26.	$90 \div 9 =$	
27.	$45 \div 9 =$	
28.	$9 \div 9 =$	
29.	$18 \div 9 =$	



# Concept Development

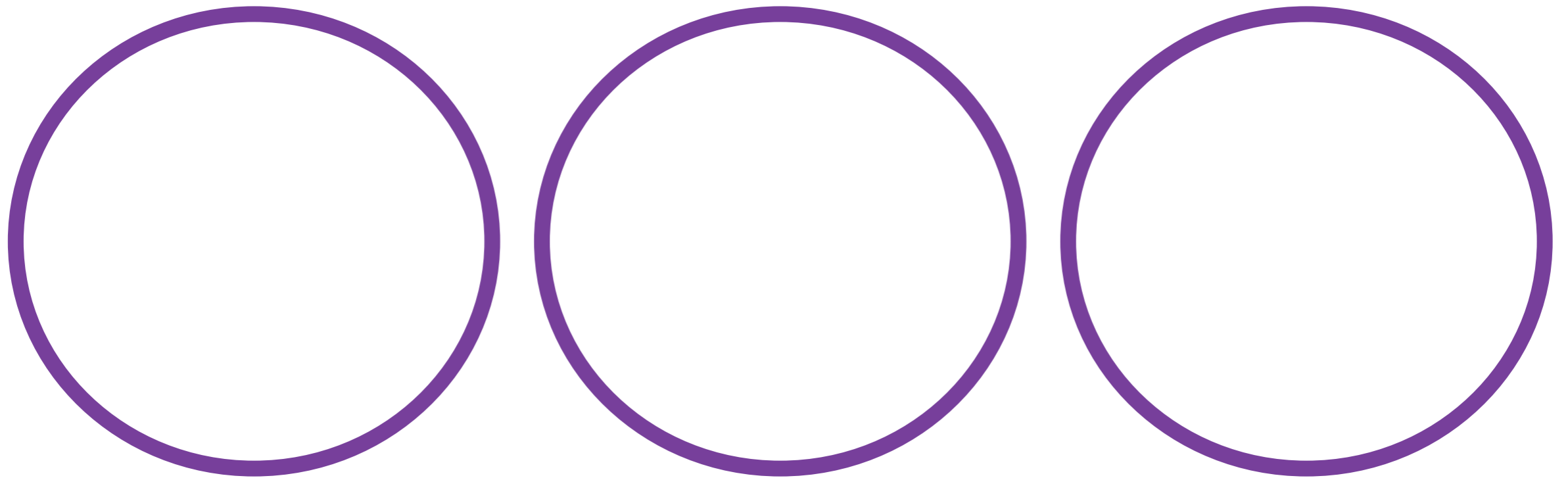
## Materials

**Personal Write Board**



# Concept Development

**Draw three large circles on your write board.**

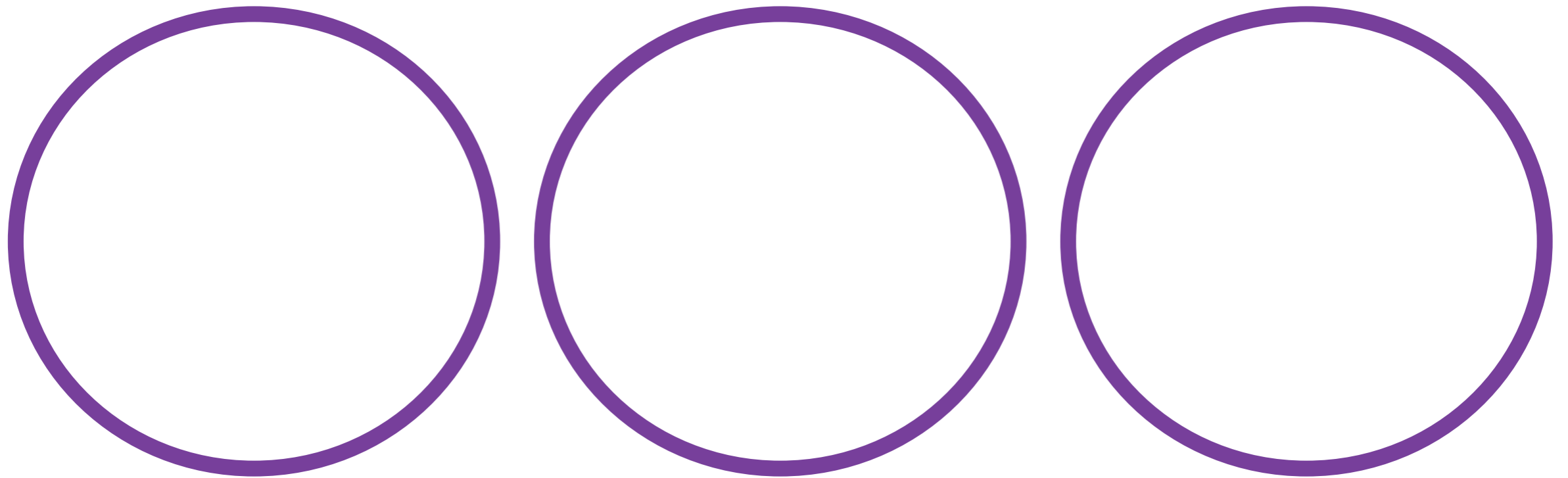






# Concept Development

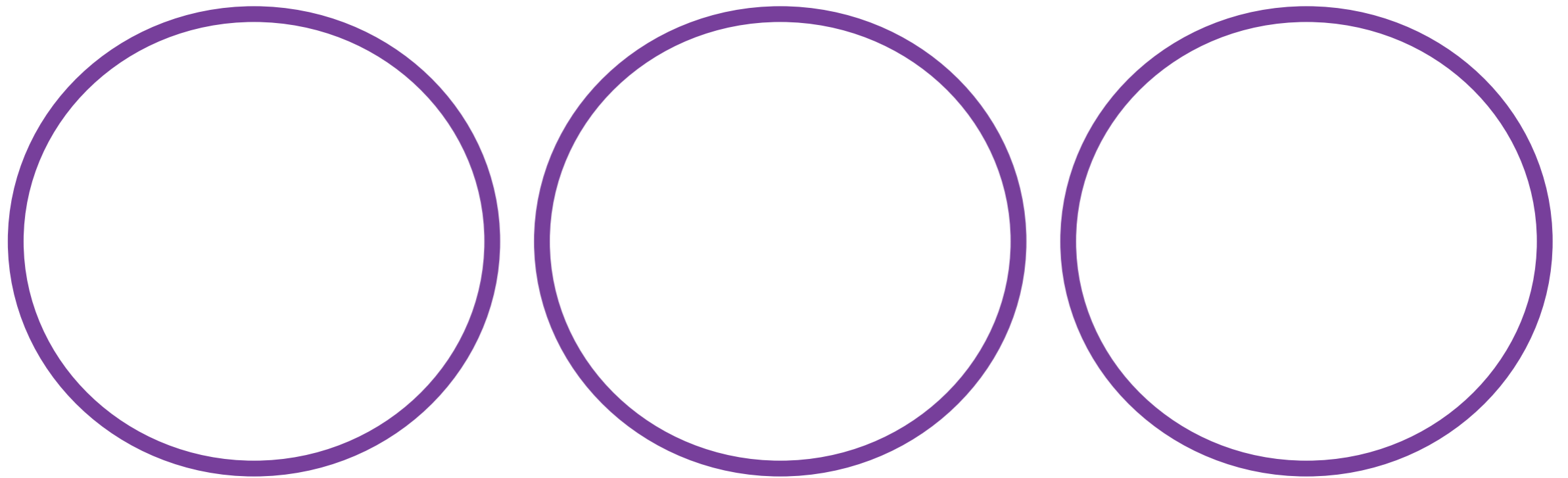
**Draw an equal number of dots in each circle.  
You can draw between 2 and 10 dots in each  
circle.**





# Concept Development

*How many circles are there?*

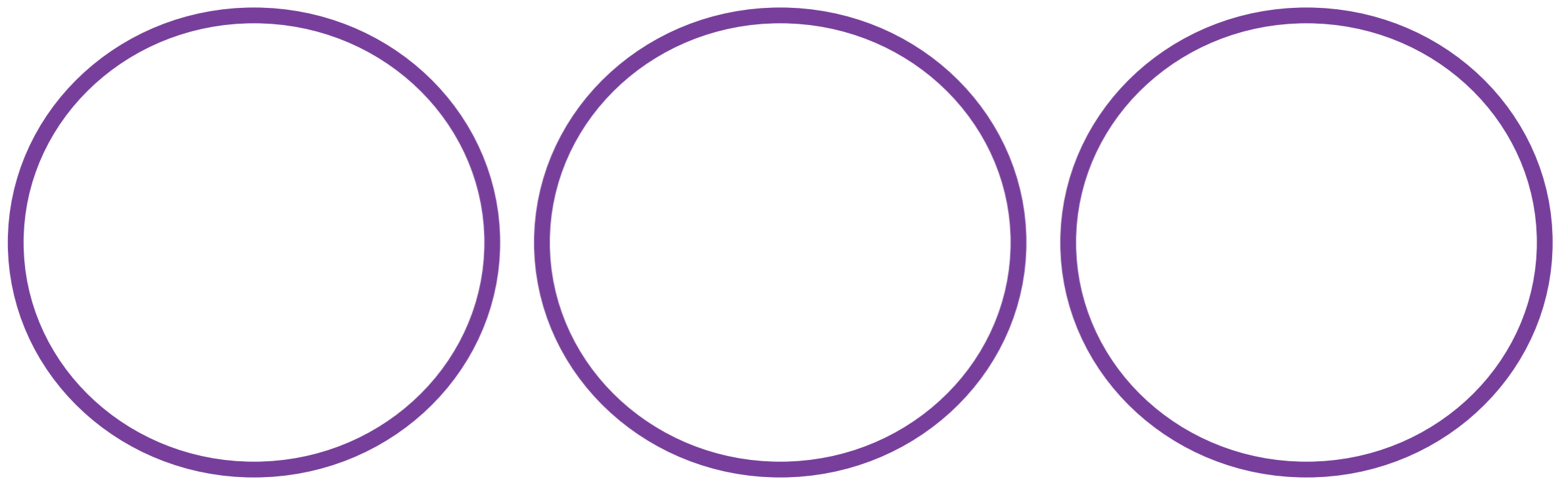




# Concept Development

**How many circles are there?**

**How many dots are in ONE circle?**



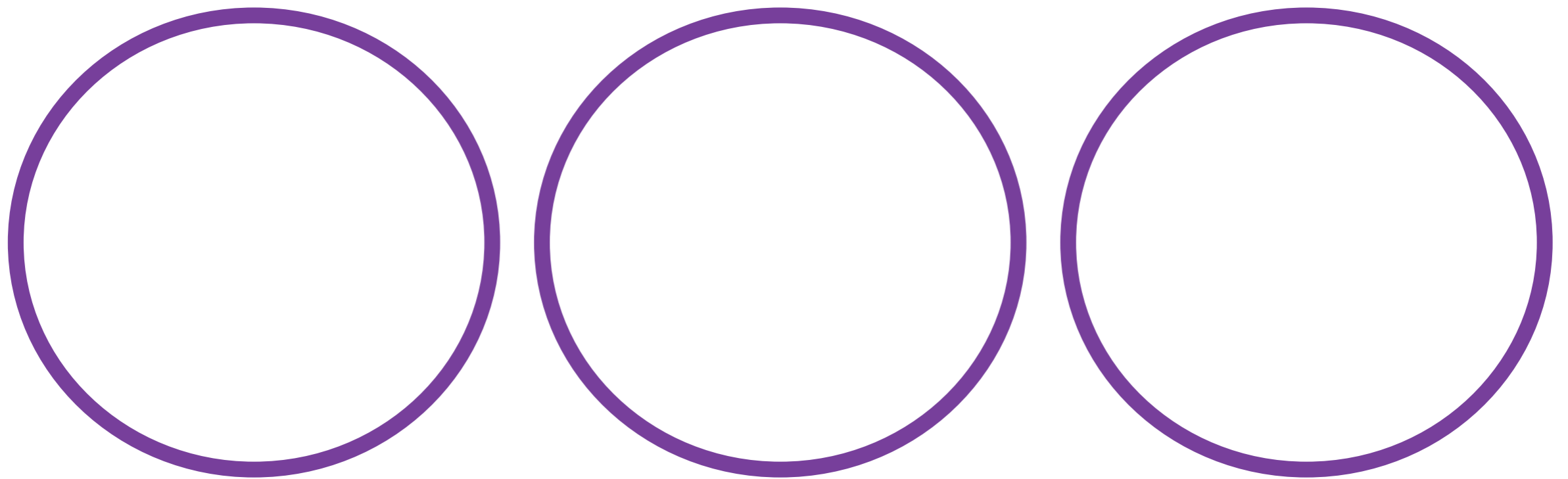


# Concept Development

**How many circles are there?**

**How many dots are in ONE circle?**

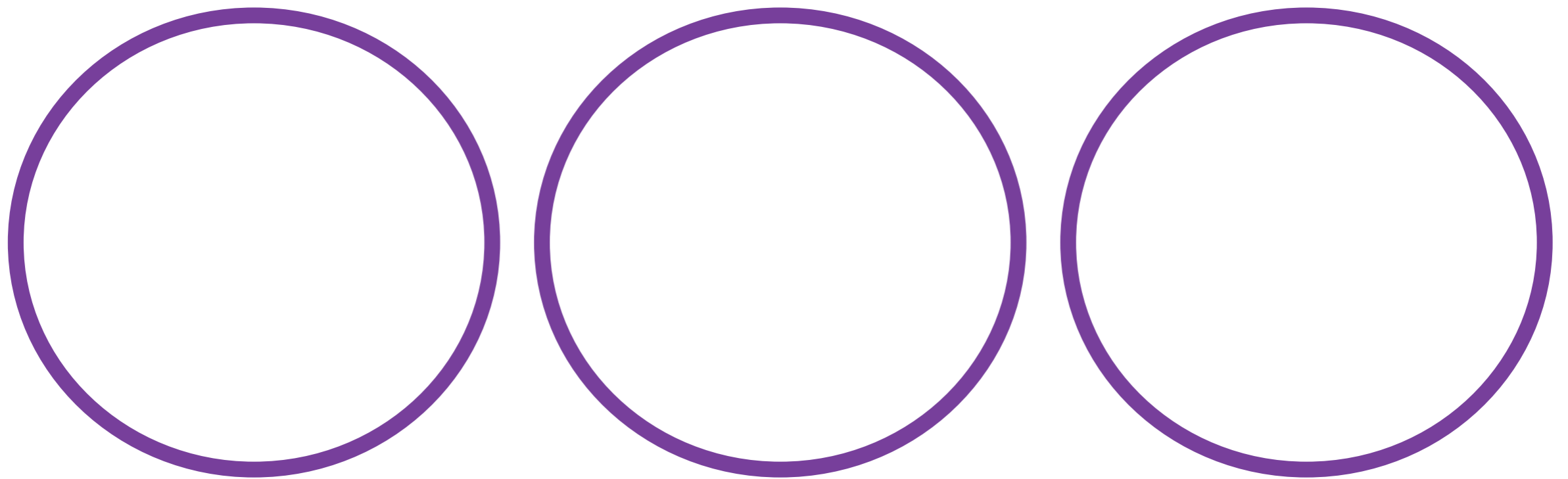
**How many dots are there altogether?**





# Concept Development

**Write the multiplication equation to  
represent your picture.  
Read it to your partner.**



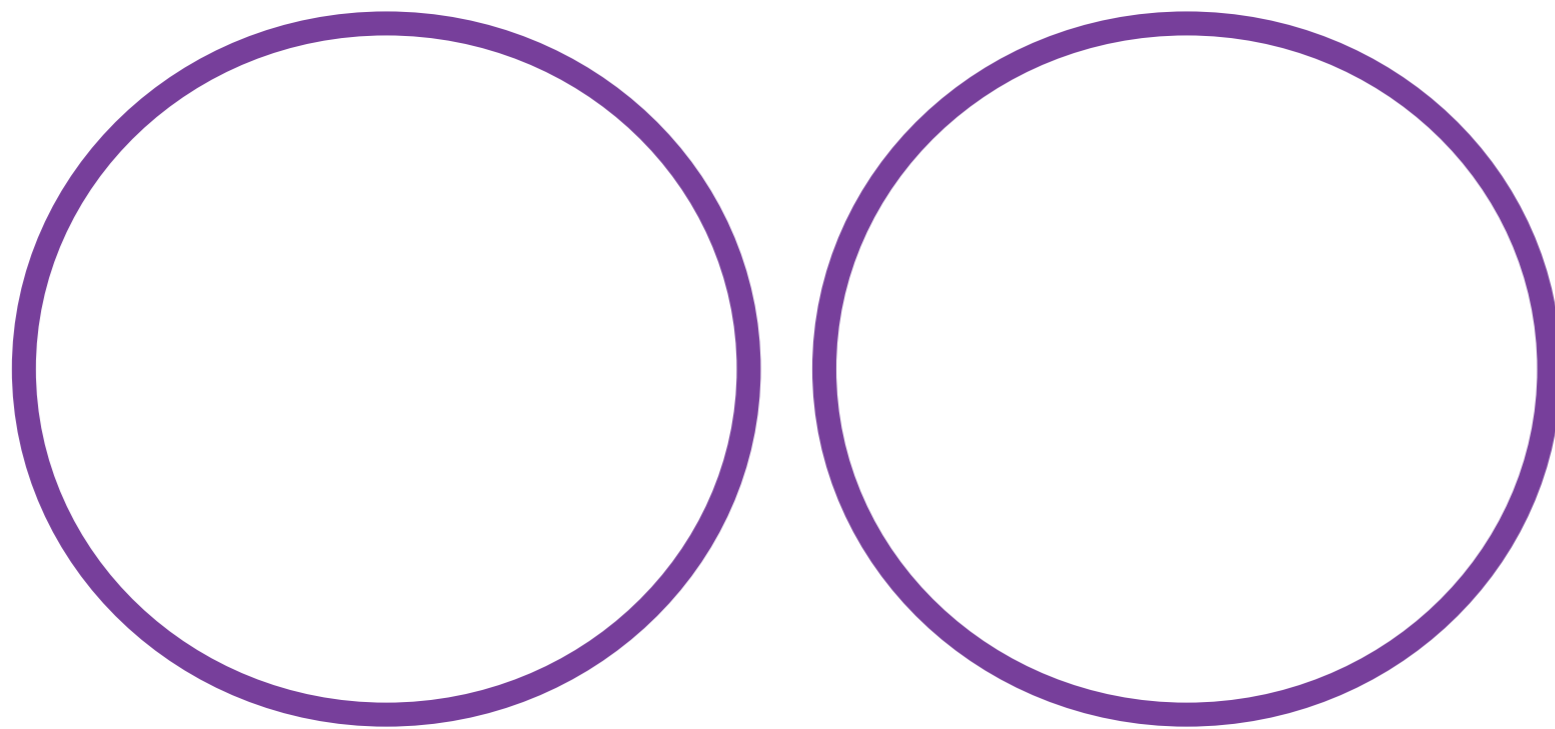


# Concept Development

**Erase one circle, leaving two.**

**Write the new multiplication equation.**

**Read it to your partner.**



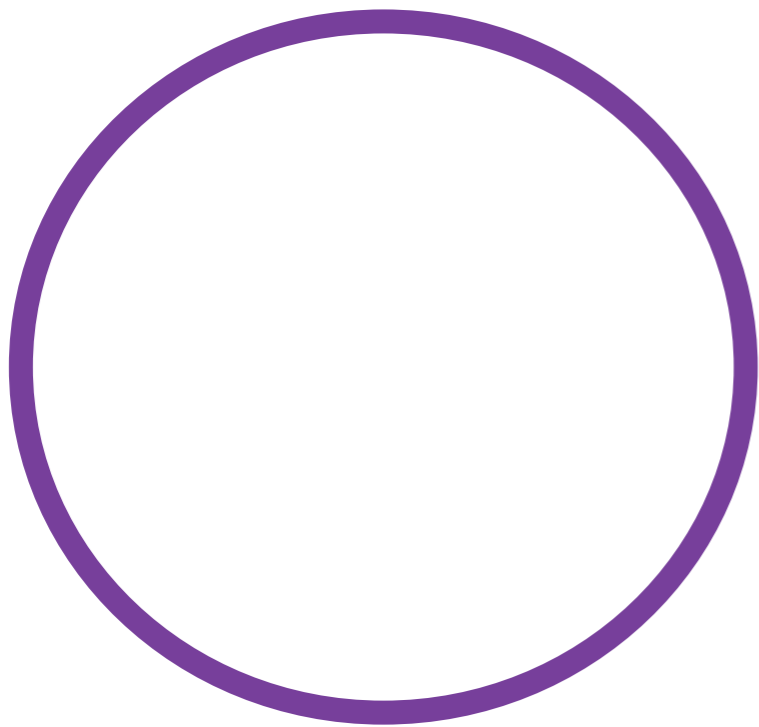


# Concept Development

**Erase another circle, leaving one.**

**Write the new multiplication equation.**

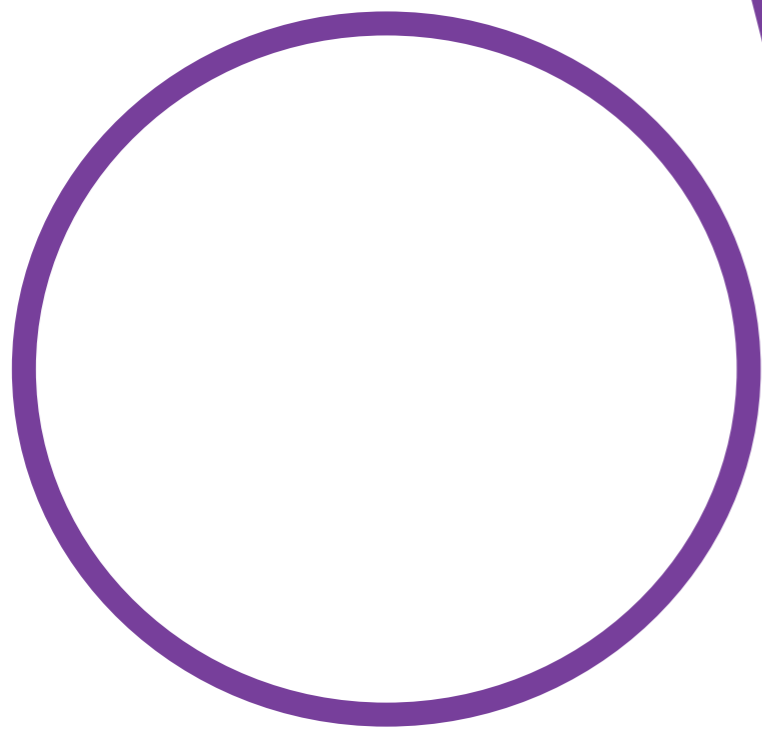
**Read it to your partner.**





# Concept Development

**Rewrite your equation. Let  $n$  equal the number of dots in each group.**



**What is  $1 \times n$  dots?**

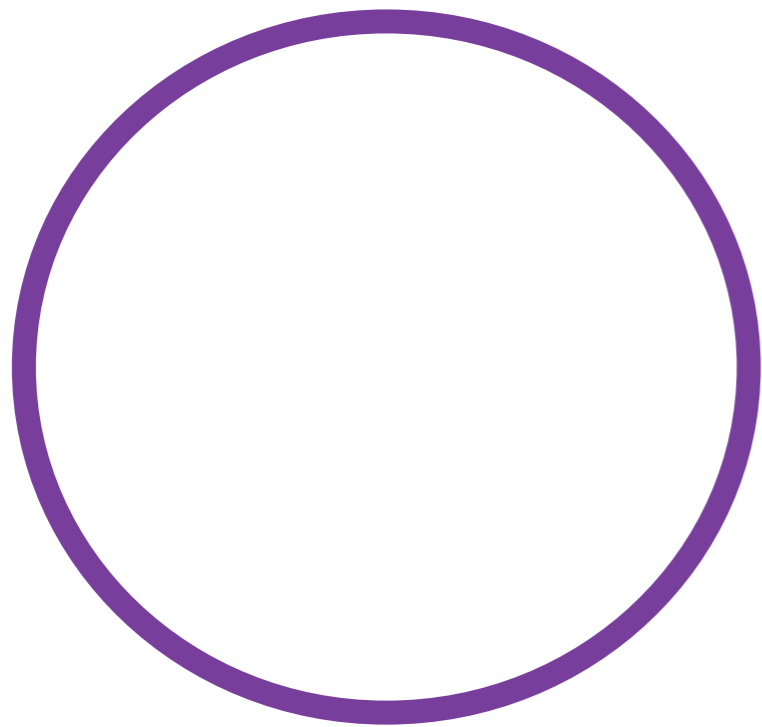




# Concept Development

**Write the related division fact for your multiplication equation.**

**Use the picture to discuss this with your partner.**

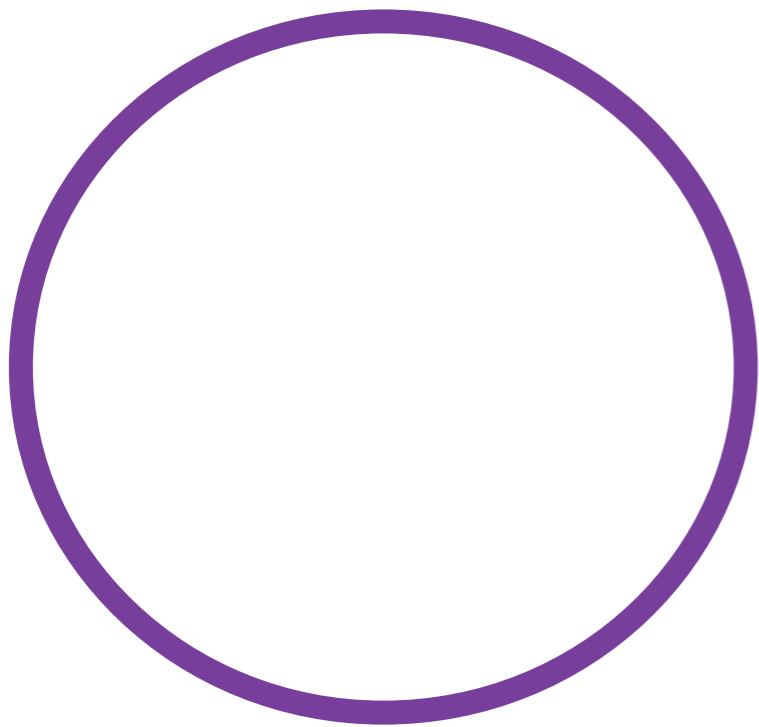




# Concept Development

**Write the related division fact for your multiplication equation.**

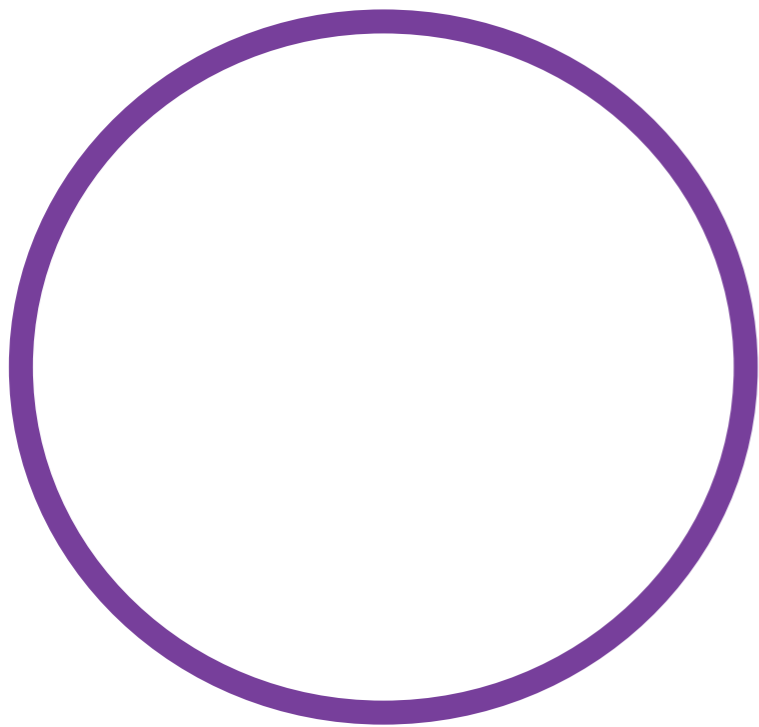
$$n \div 1 = n$$





# Concept Development

*What is any number divided by 1?*





# Concept Development

*Now, draw  $n$  circles.*



# Concept Development

**Now, draw  $n$  circles.**

**Put 3 dots in each circle.**



# Concept Development

**Now, draw  $n$  circles.**

**Put 3 dots in each circle.**

**Write the multiplication and  
division equation to  
represent your picture.**



# Concept Development

**Now, erase one dot from each circle.**

**Write the *new*  
multiplication and division equation  
to represent your picture.**



# Concept Development

**Now, erase one dot from each circle.**

**Write the *new*  
multiplication and division equation  
to represent your picture.**

**Continue this process  
until you are left with  
 $n \times 1 = n$  and  $n \div n = 1$**





# Concept Development

$$4 \times 0 = b$$

**What does this equation represent?**



# Concept Development

$$4 \times 0 = b$$

**Draw a picture of the equation using circles to show the groups and dots to show the number in each group.**



# Concept Development

$$4 \times 0 = b$$

**What is the value of  $b$   
in the equation?**



# Concept Development

$$4 \times 0 = b$$

**What is the value of  $b$   
in the equation?**

**ZERO!**



# Concept Development

$$4 \times 0 = b$$

**What is the value of  $b$   
in the equation?**

**Write the related division equation  
on your board.**



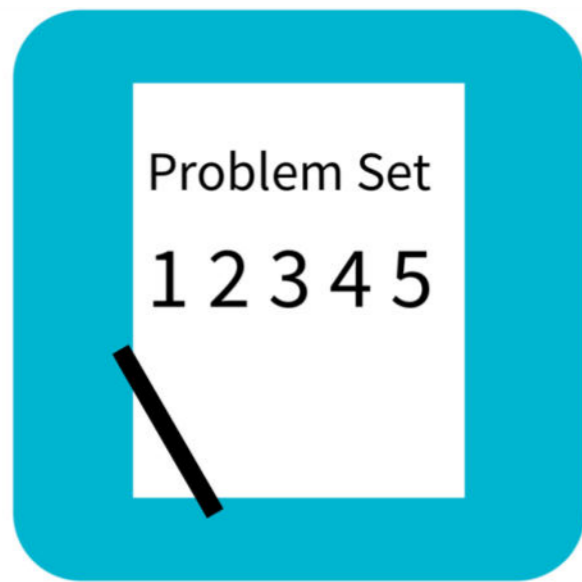
# Concept Development

***Continue the same process  
with the following:***

$$7 \times 0$$

$$0 \times 6$$

$$0 \times 0$$



# Problem Set

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Complete.

a. \_\_\_\_\_  $\times$  1 = 6

b. \_\_\_\_\_  $\div$  7 = 0

c. 8  $\times$  \_\_\_\_\_ = 8

d. 9  $\div$  \_\_\_\_\_ = 9

e. 0  $\div$  5 = \_\_\_\_\_

f. \_\_\_\_\_  $\times$  0 = 0

g. 4  $\div$  \_\_\_\_\_ = 1

h. \_\_\_\_\_  $\times$  1 = 3

# Debrief

**Discuss with a partner, what patterns for multiplying and dividing by 0 and 1 helped you solve Problem 1?**

**What pattern for multiplying by 1 does Problem 3 represent?**

**Which problems show that we can't define a single specific value when we divide by 0? Explain your answer to a partner.**

**How are multiplying by 1 and multiplying units of 1 similar to adding 0 to a number?**

**How can the patterns for multiplying and dividing by 1 or multiplying and dividing 0 by a number help you solve equations with larger factors (e.g.,  $346 \times 1 = b$ )?**



# Exit Ticket

Name \_\_\_\_\_

Date \_\_\_\_\_

1. Complete.

a. \_\_\_\_\_  $\times$  1 = 5

b. 6  $\times$  \_\_\_\_\_ = 6

c. \_\_\_\_\_  $\div$  7 = 0

d. 5  $\times$  \_\_\_\_\_ = 0

e. 1 = 9  $\div$  \_\_\_\_\_

f. 8 = 1  $\times$  \_\_\_\_\_