Eureka Math

3rd Grade
Module 4
Lesson 1

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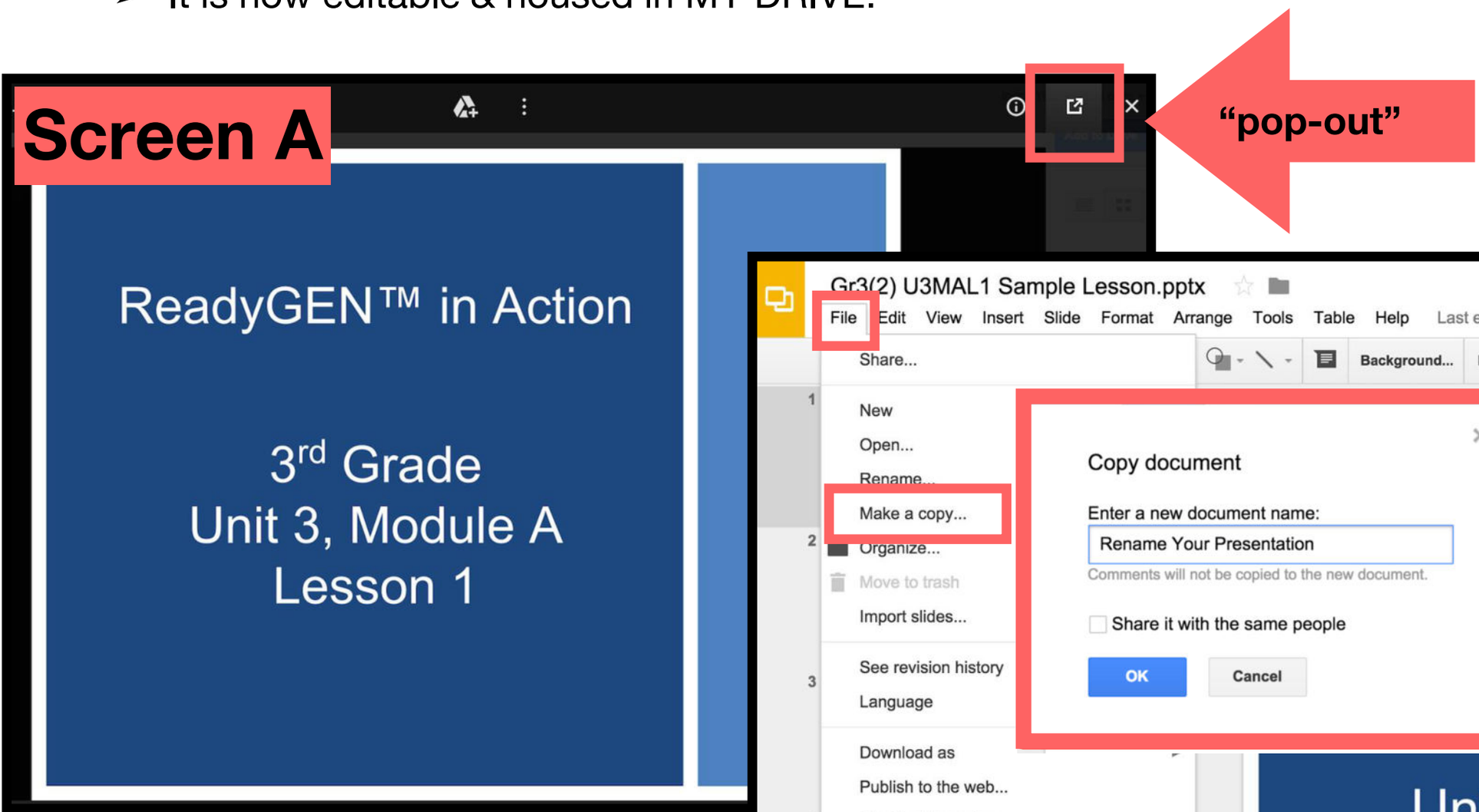
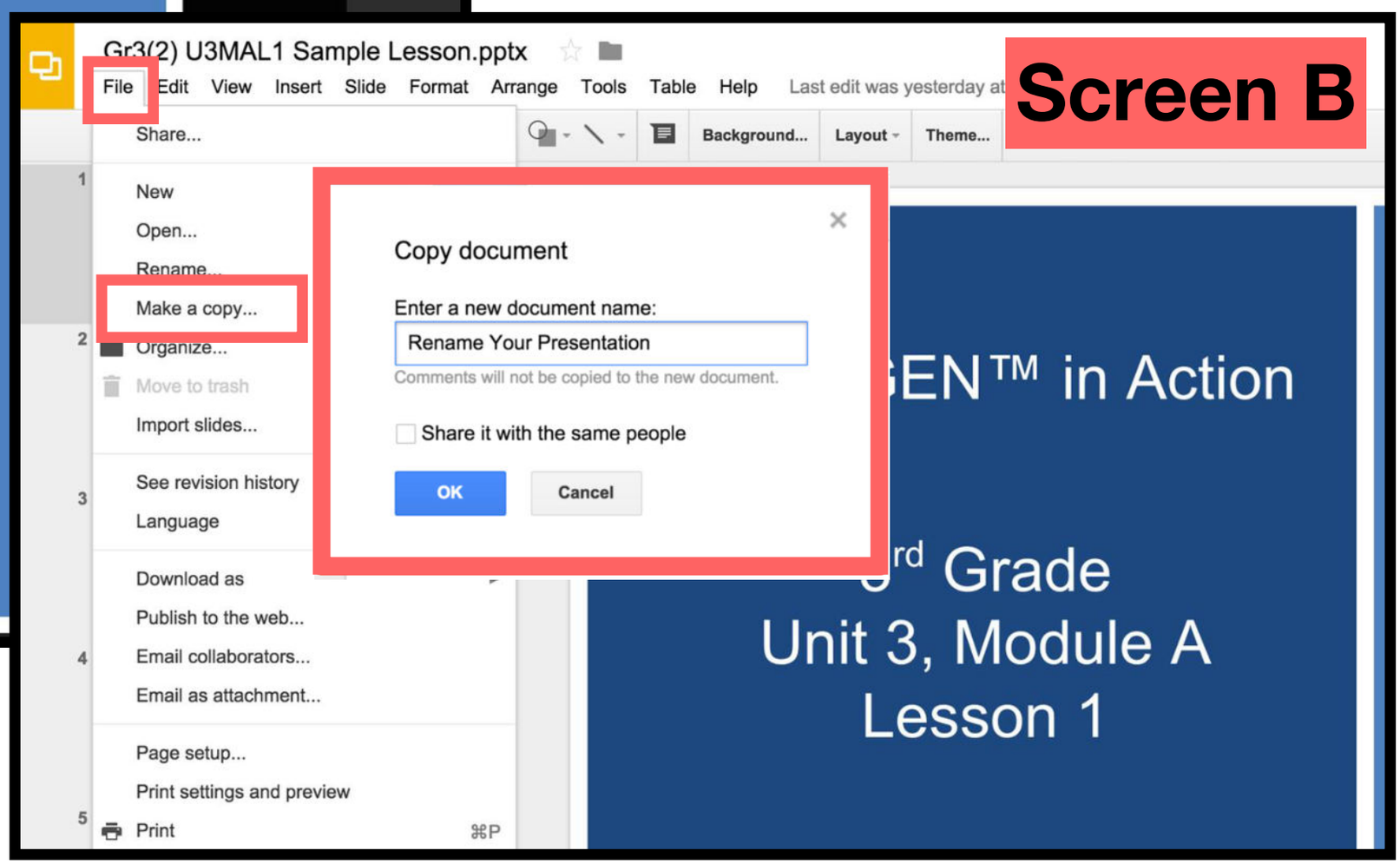


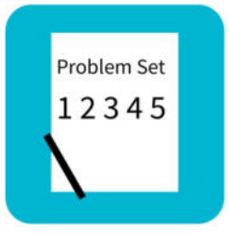


Icons

Read, Draw, Write

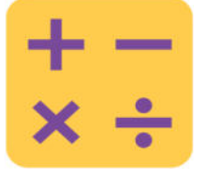
Learning Target

Personal White Board



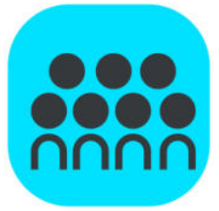
Problem Set

Manipulatives Needed



Fluency

Think Pair Share



Whole Class

Individual

Partner

Small Group

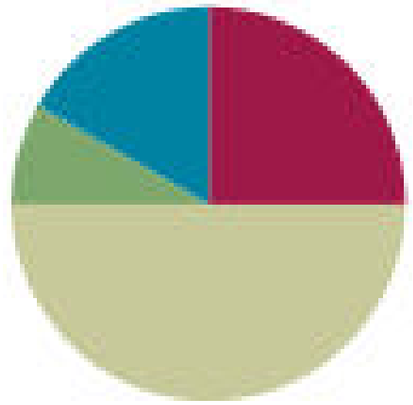
Small Group Time

Lesson 1

Objective: Understand area as an attribute of plane figures.

Suggested Lesson Structure

Fluency Practice	(15 minutes)
Application Problem	(5 minutes)
Concept Development	(30 minutes)
Student Debrief	(10 minutes)
Total Time	**(60 minutes)**



Fluency Practice (15 minutes)

- Group Counting **3.OA.1** (4 minutes)
- Identify the Shape **2.G.1** (3 minutes)
- Find the Common Products **3.OA.7** (8 minutes)

I can understand area as an attribute of plane figures.

Fluency Practice

Group Counting

Count forward and backward as I indicate with pointing my finger, by…

Threes to 30

Fluency Practice

Group Counting

Count forward and backward as I indicate with pointing my finger, by…

Sixes to 60

Fluency Practice

Group Counting

Count forward and backward as I indicate with pointing my finger, by…

Sevens to 70

Fluency Practice

Group Counting

Count forward and backward as I indicate with pointing my finger, by…

Eights to 80

Fluency Practice

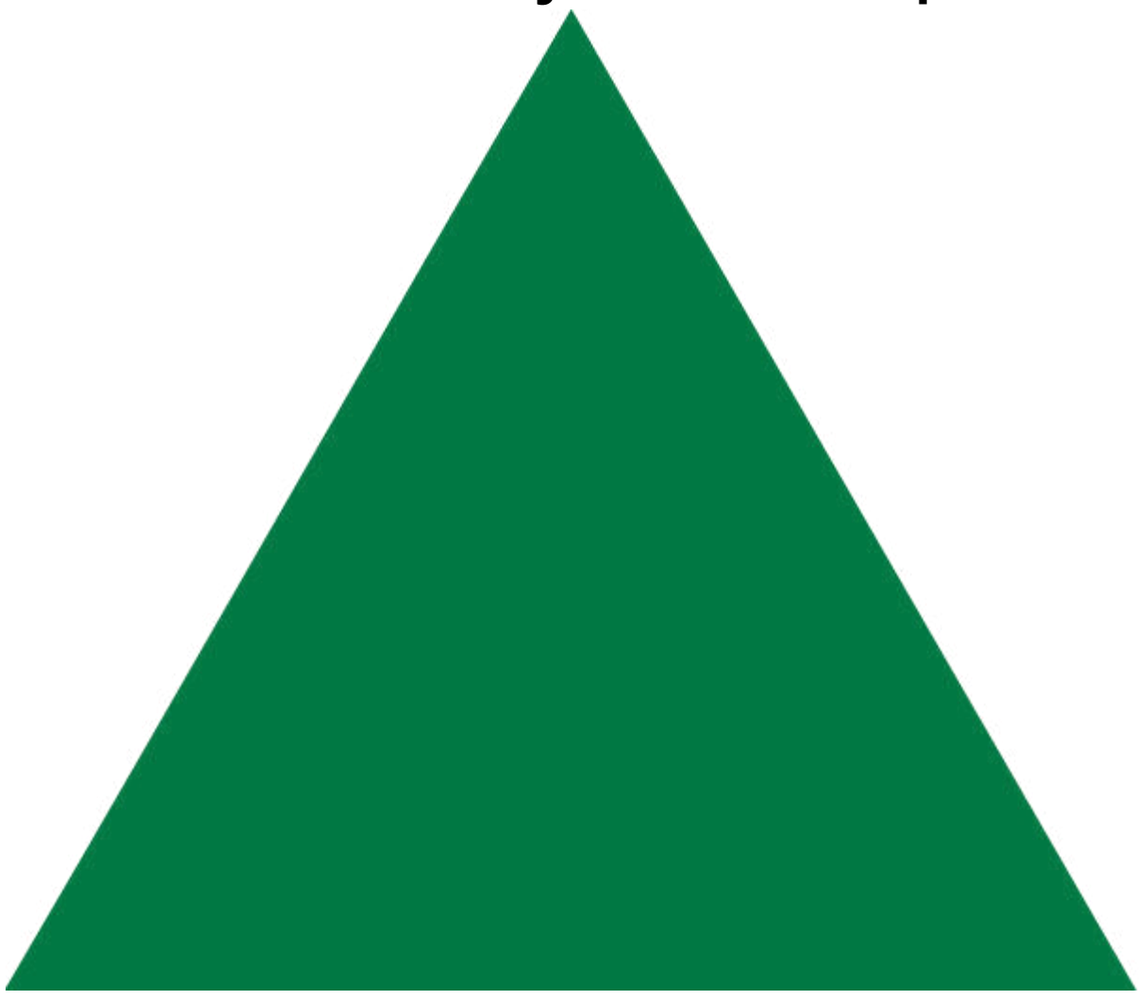
Group Counting

Count forward and backward as I indicate with pointing my finger, by…

Nines to 90

Fluency Practice

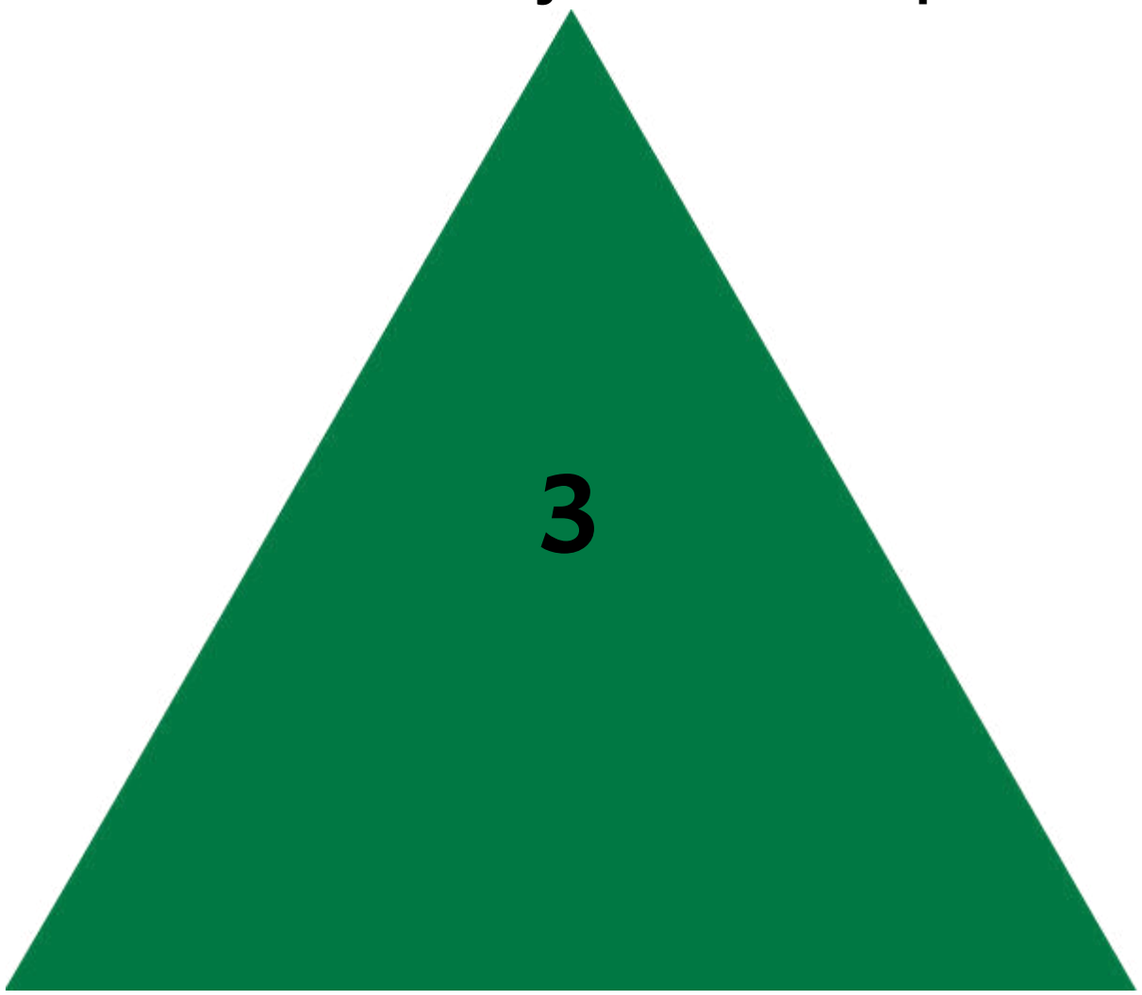
Identify the Shape



How many sides does this shape have?

Fluency Practice

Identify the Shape



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Fluency Practice

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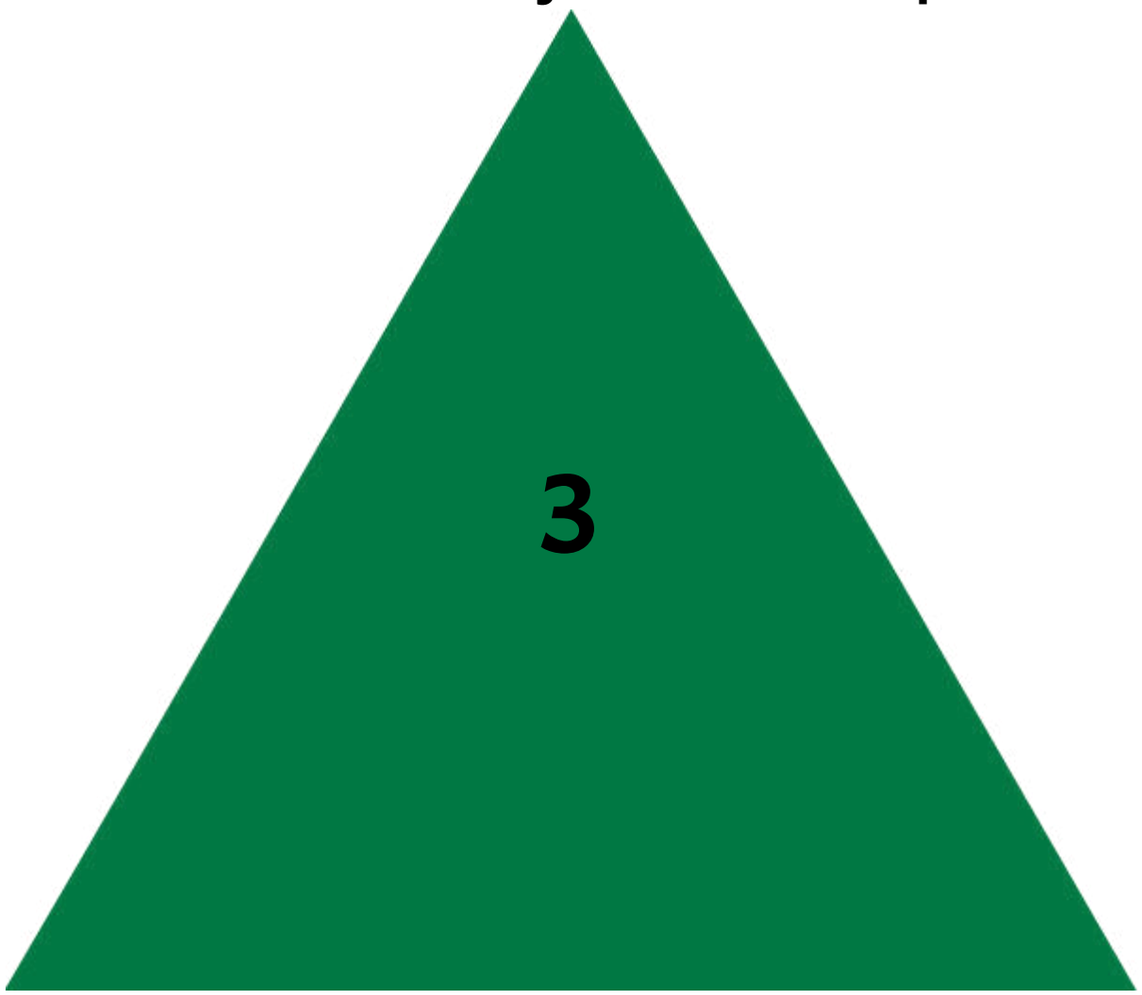
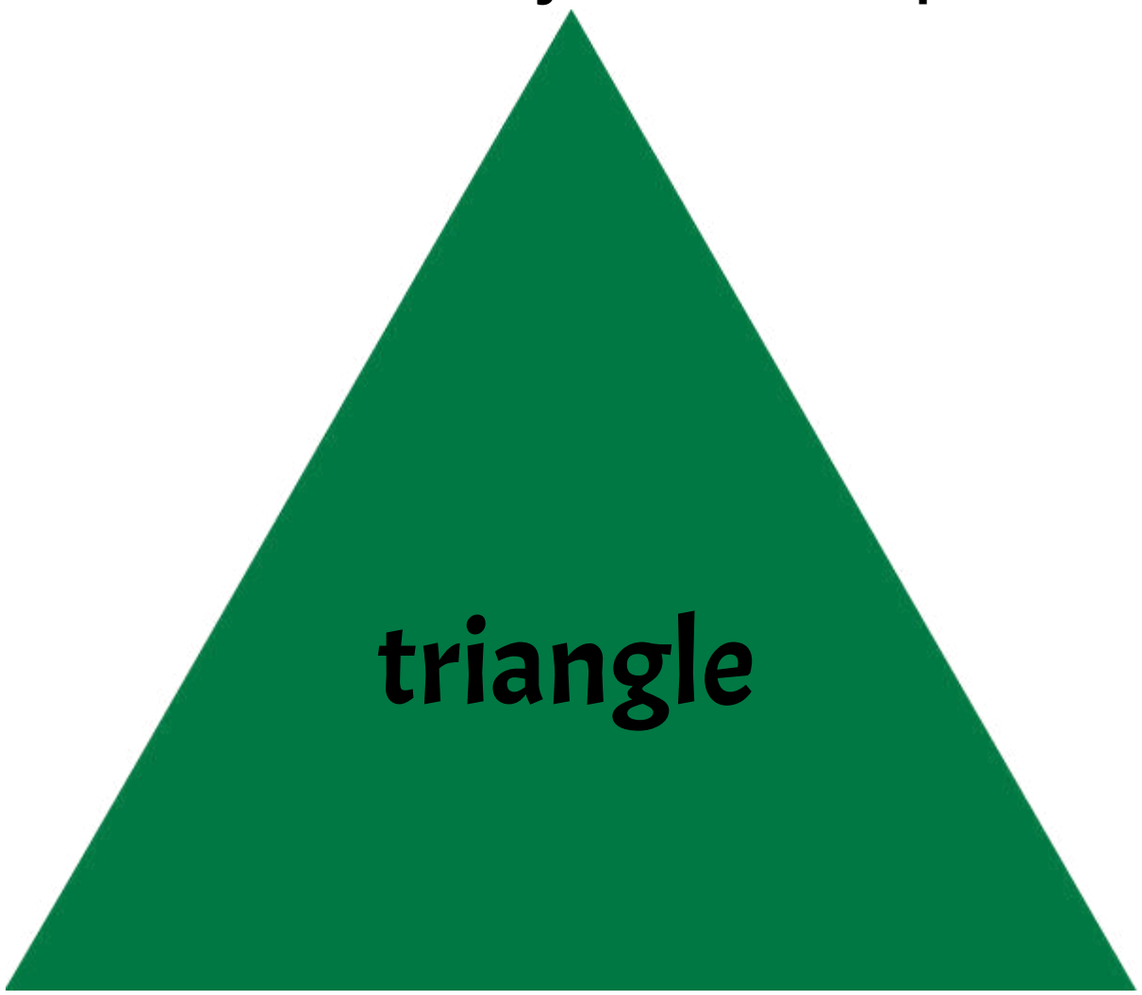


Name the shape.

Fluency Practice

Identify the Shape



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Fluency Practice

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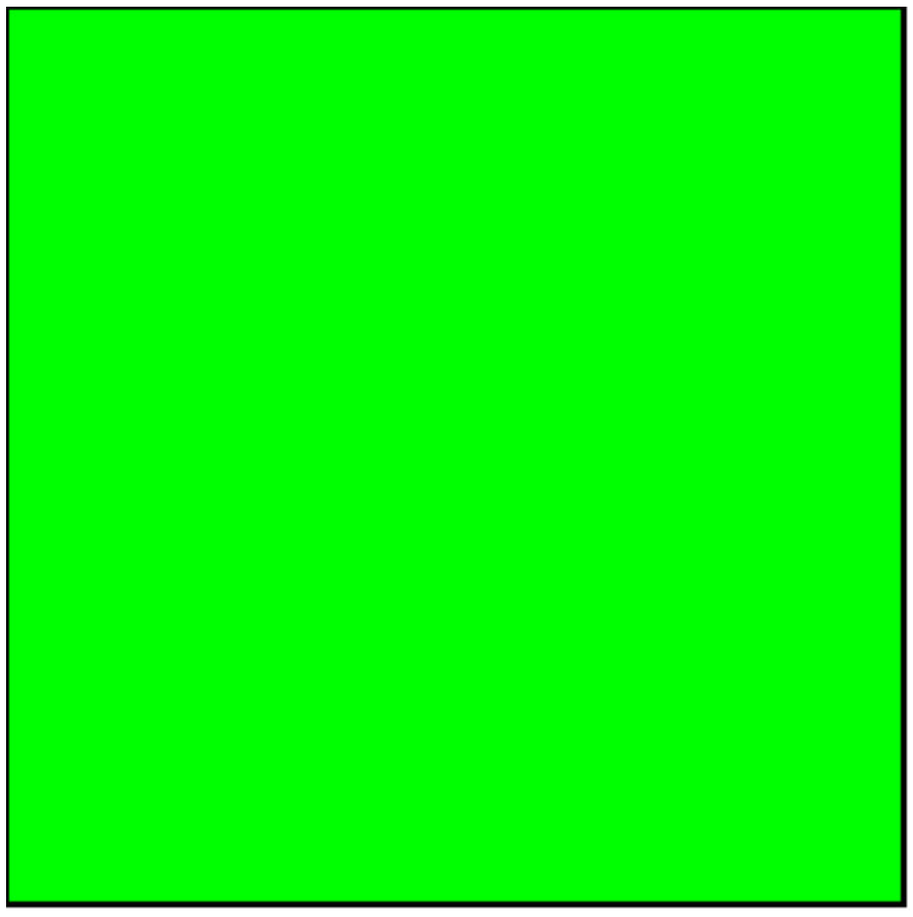

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Fluency Practice

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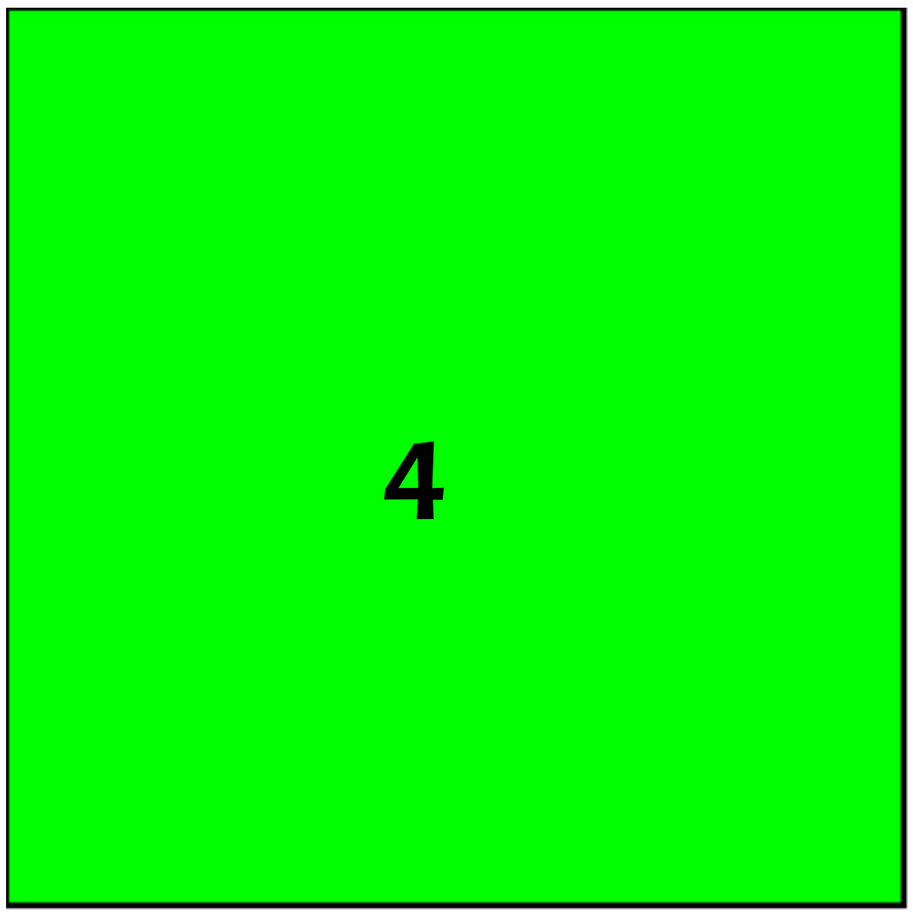

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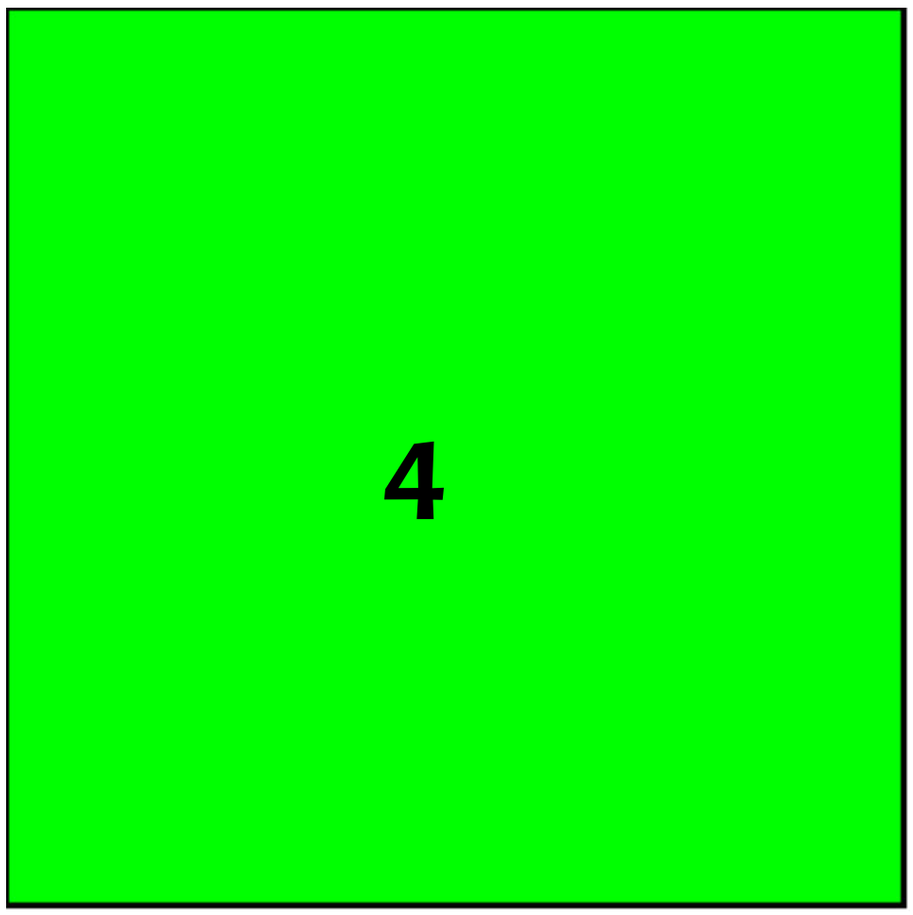

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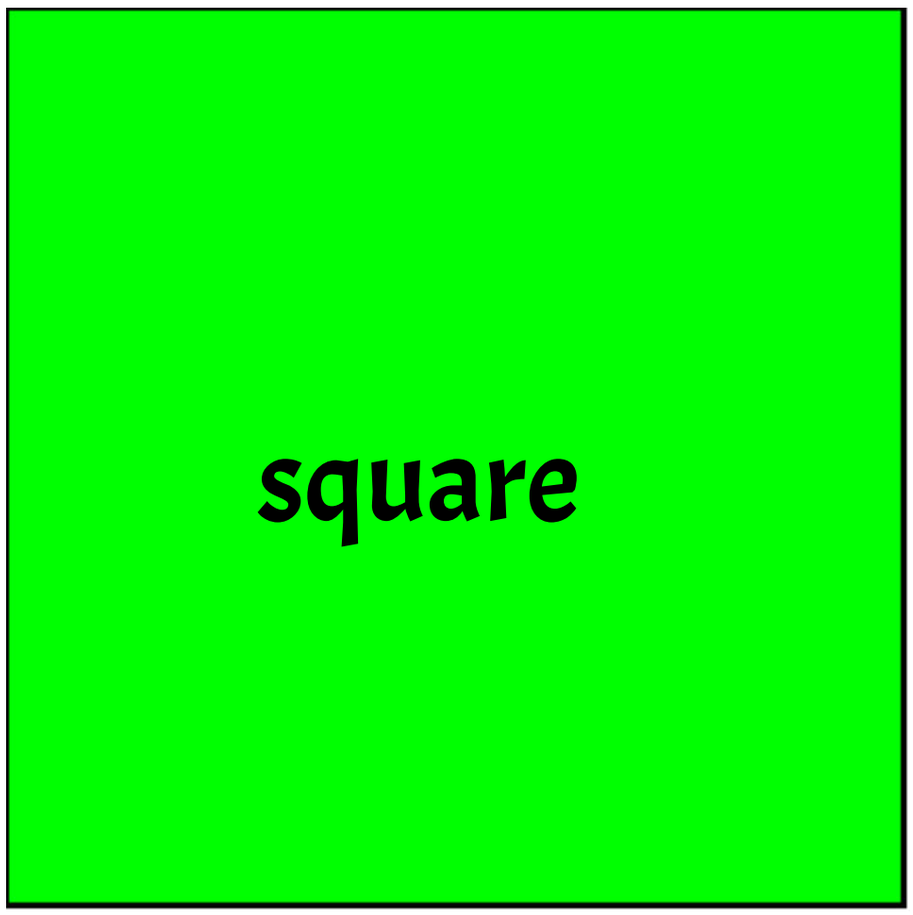

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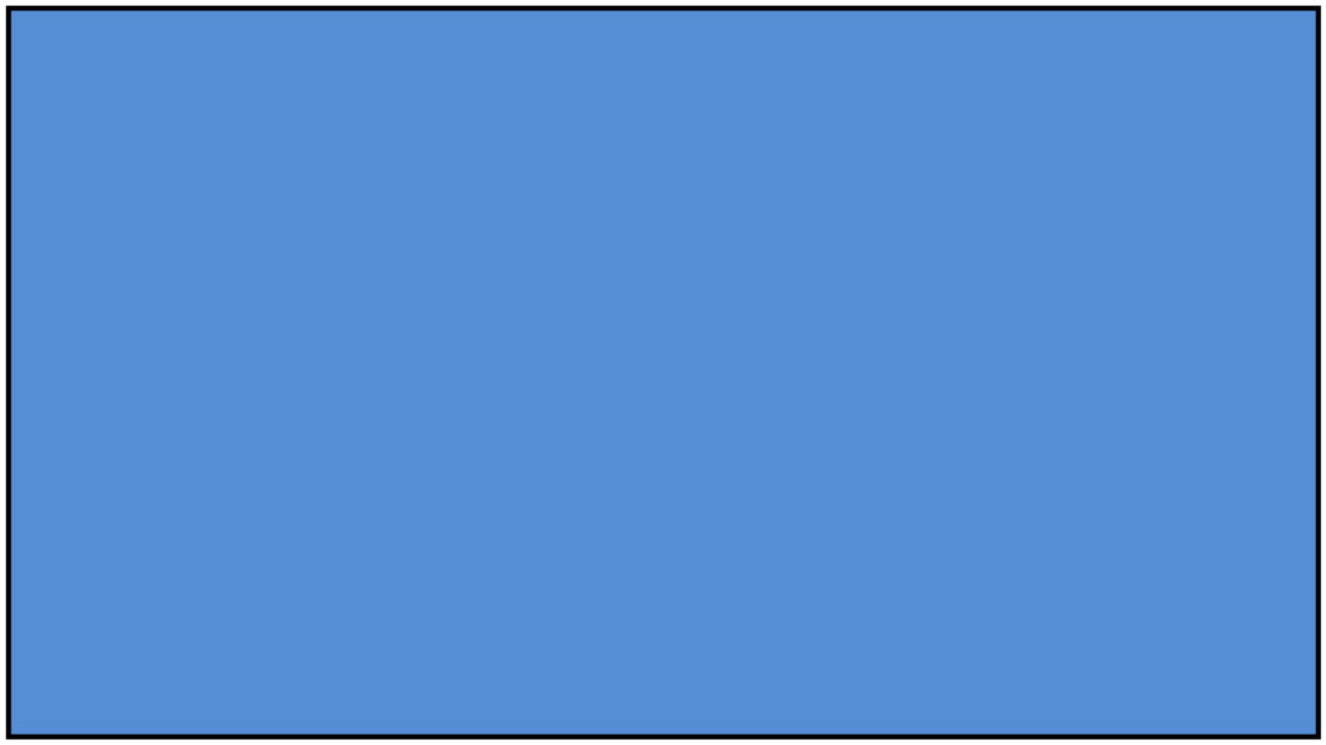

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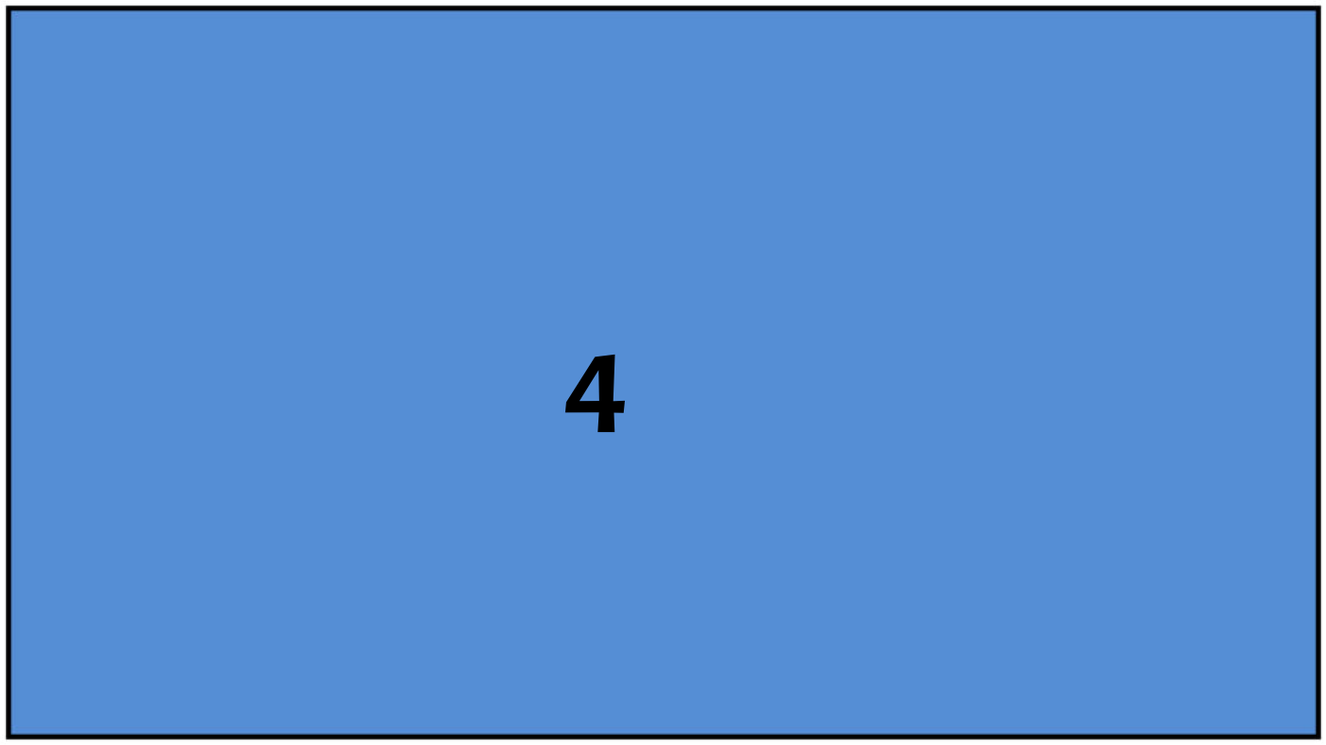

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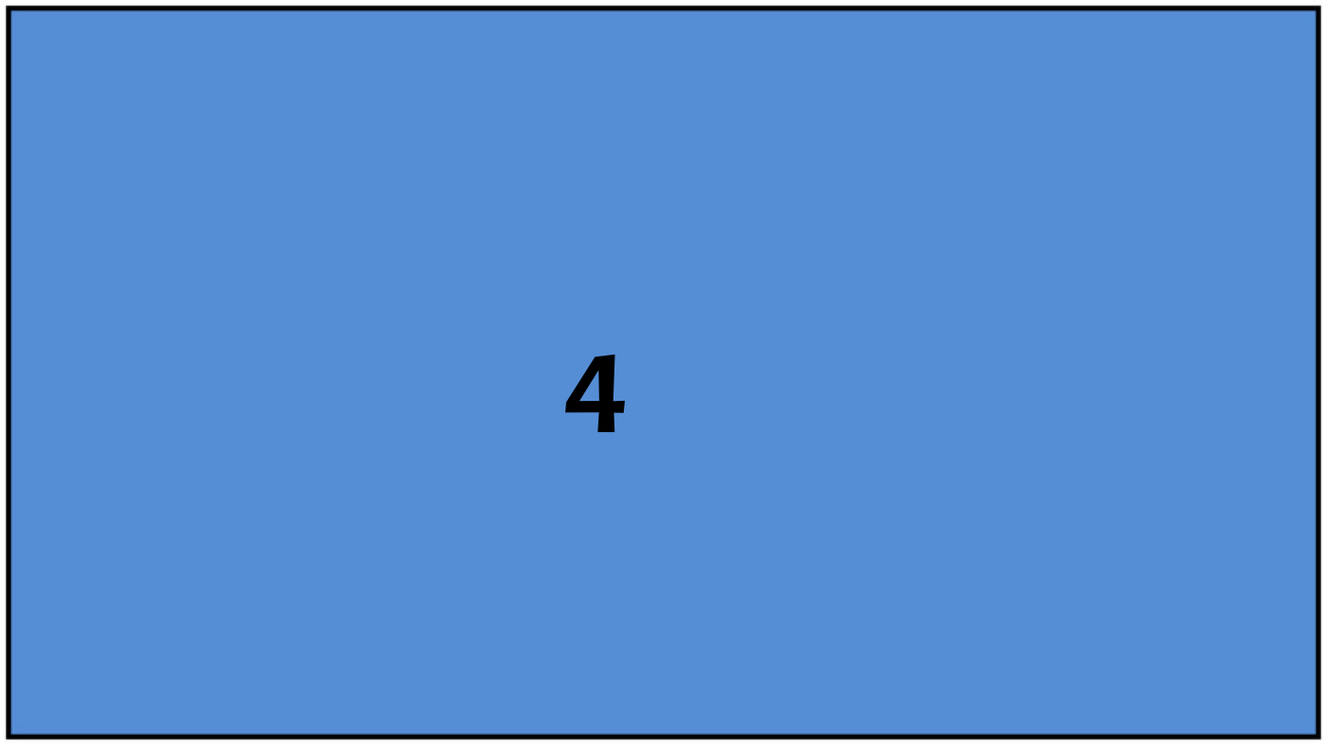

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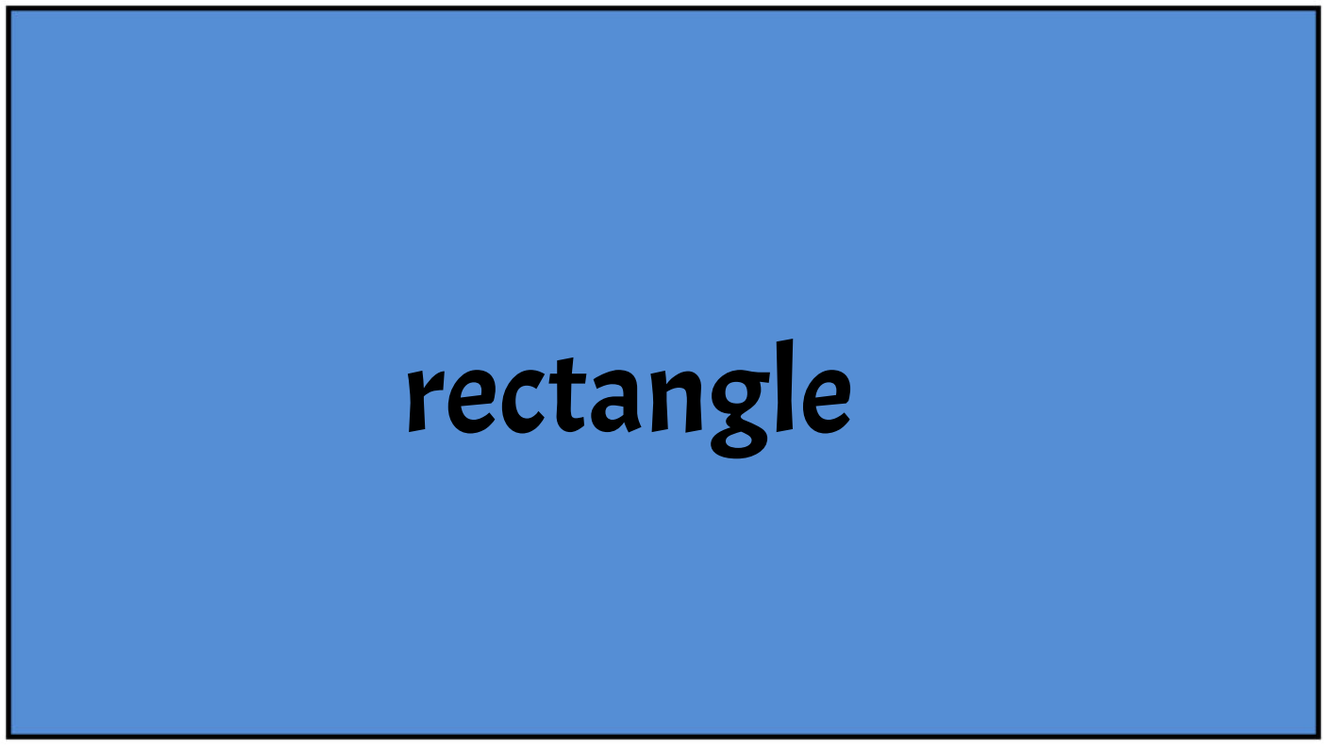

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Fluency Practice

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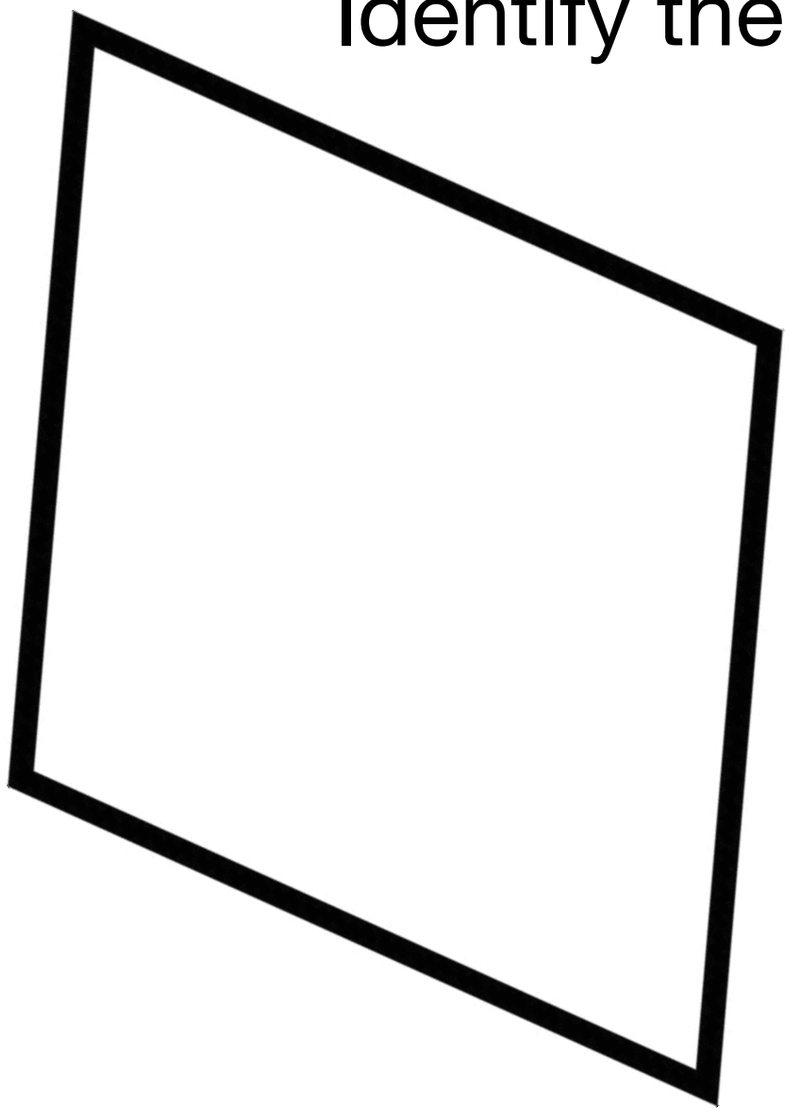

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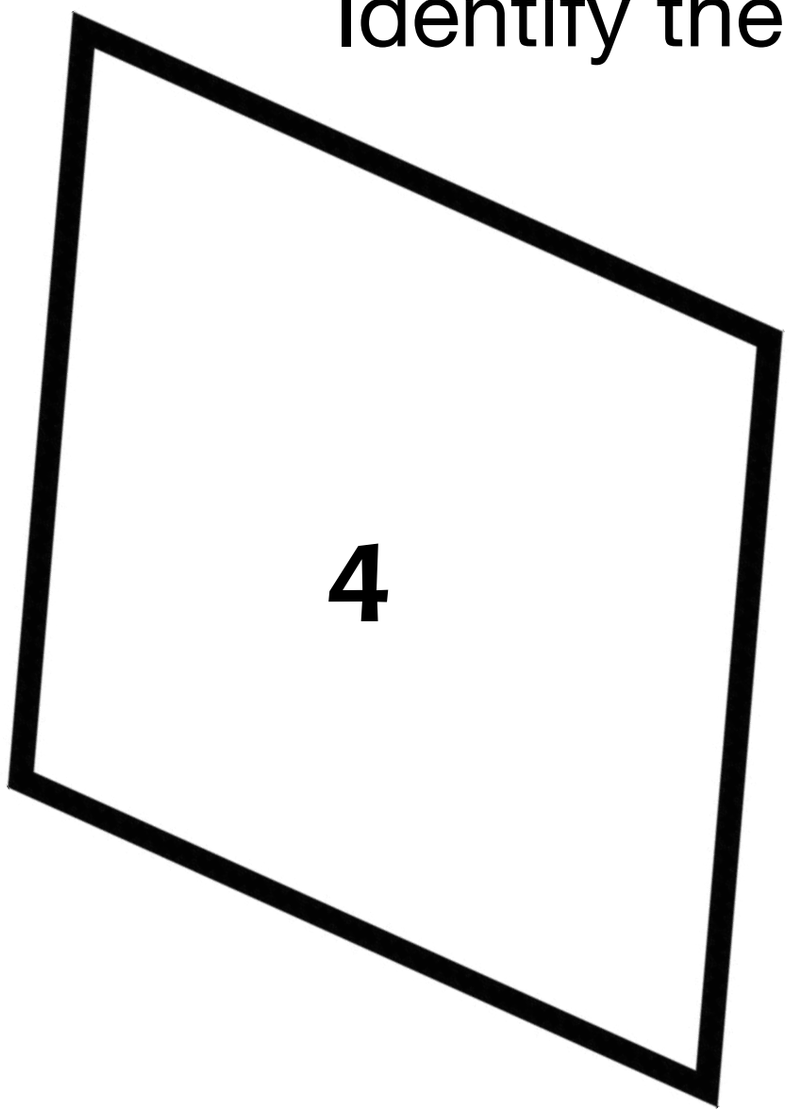

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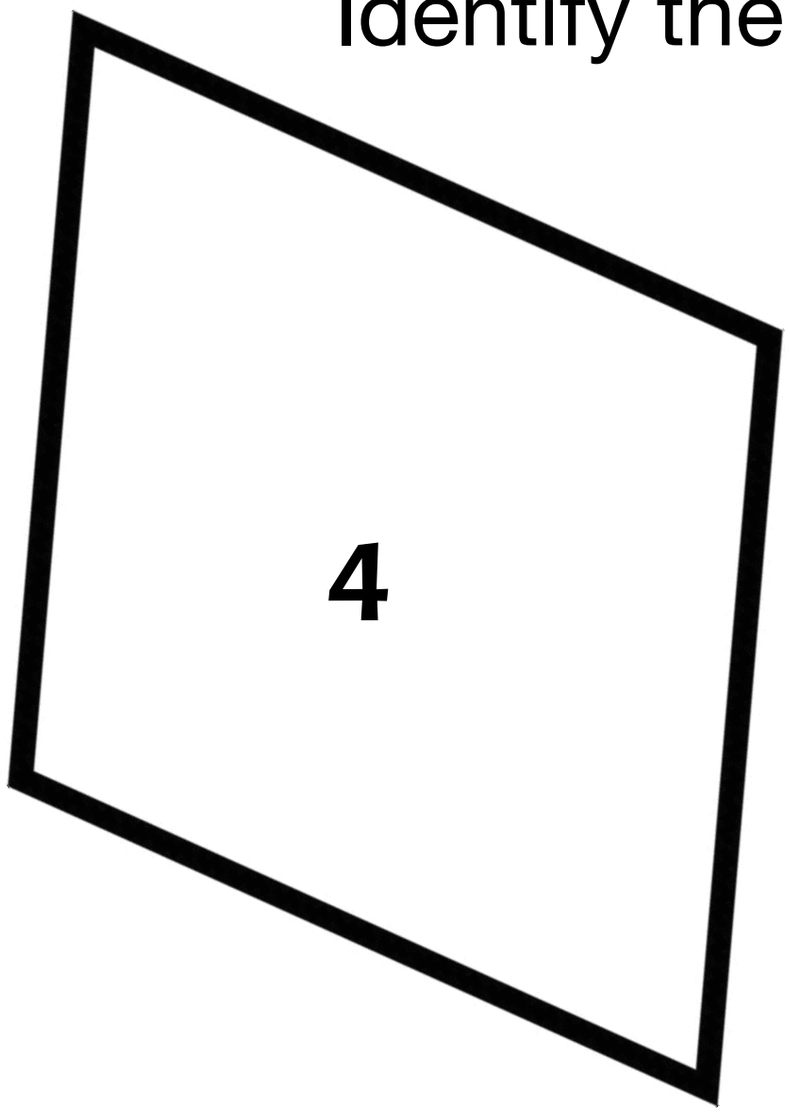

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Fluency Practice

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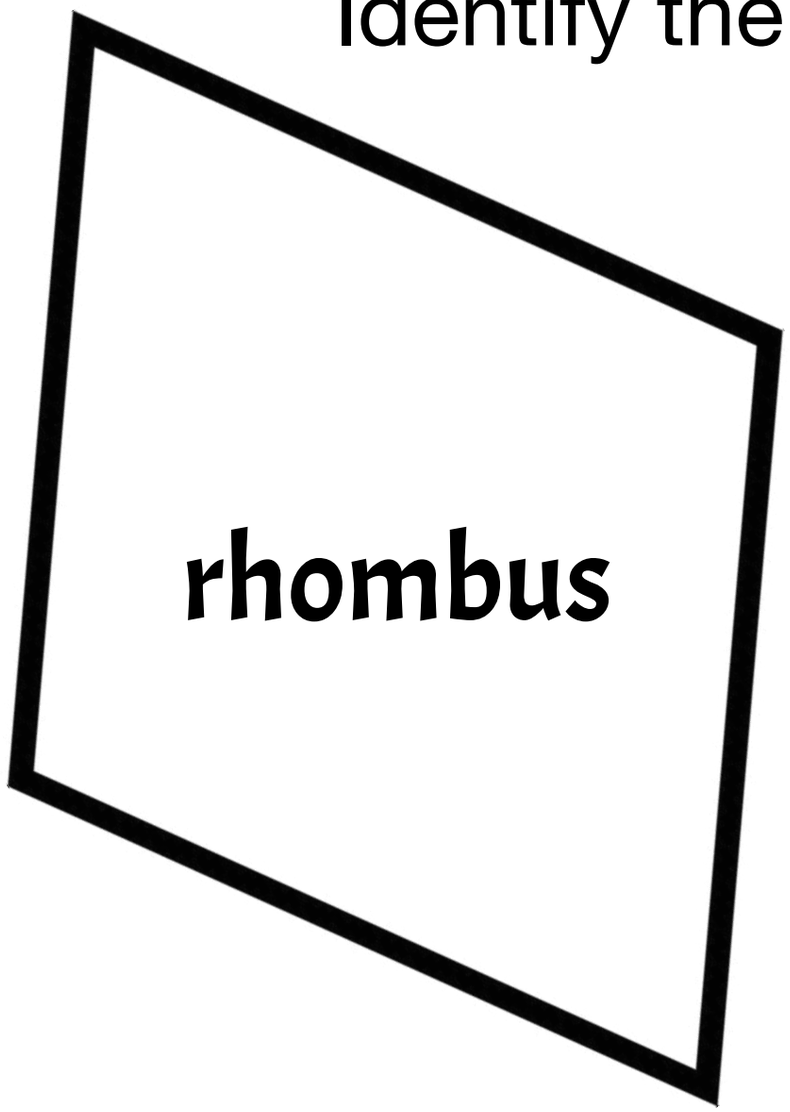

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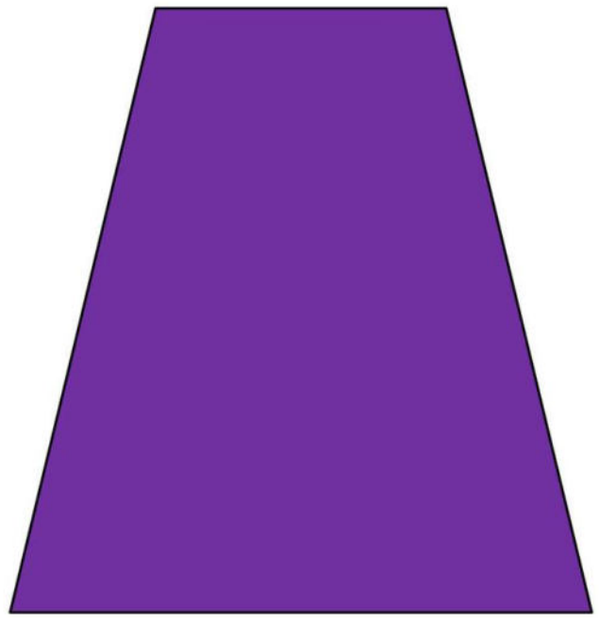

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Fluency Practice

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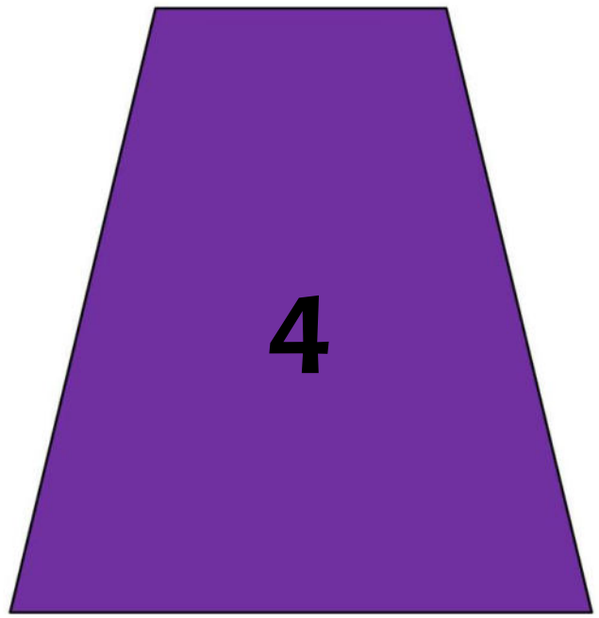

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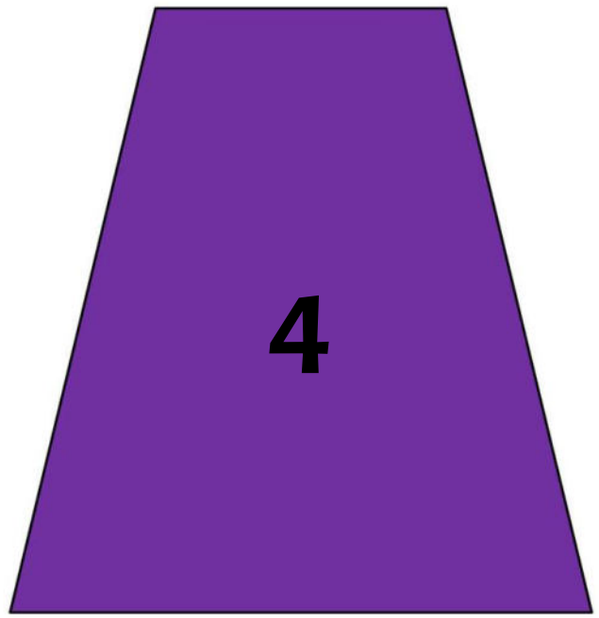

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Fluency Practice

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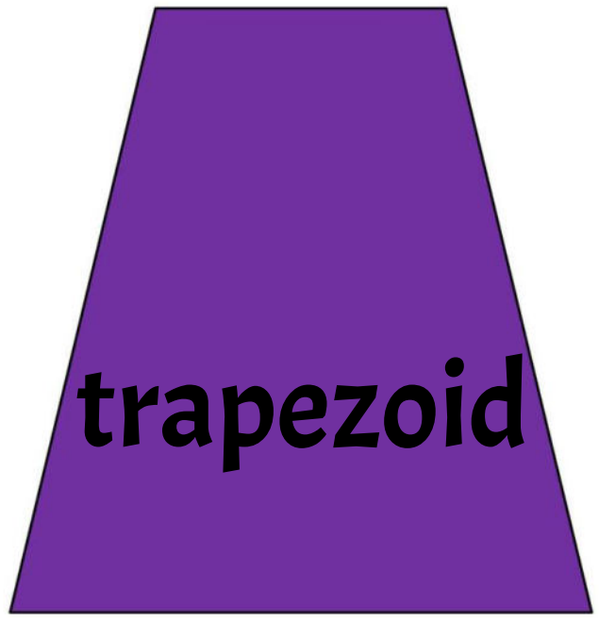


Name the shape.

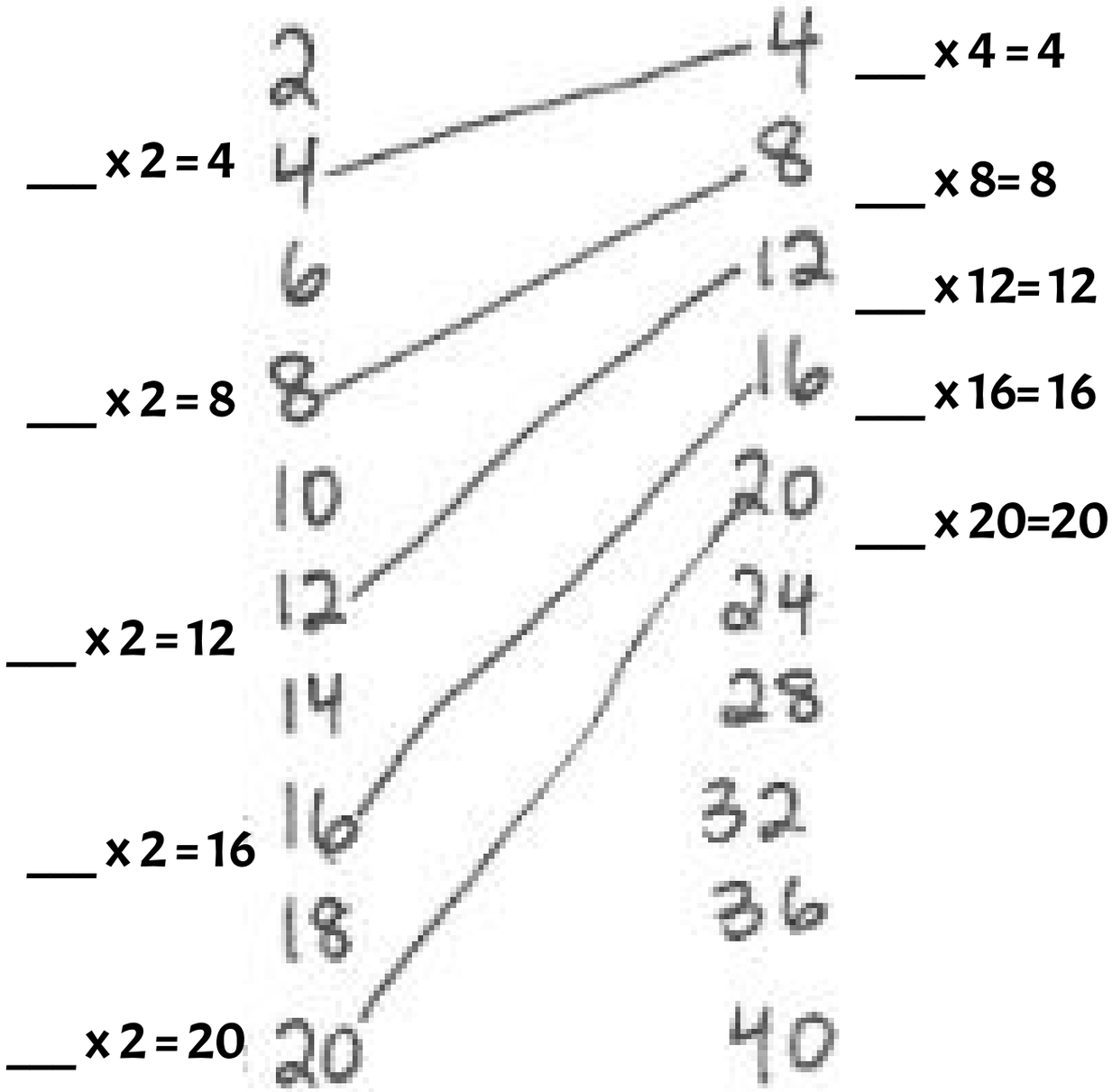
Fluency Practice

Find the Common Products

Fold your paper in half vertically. Unfold your paper. On the left half, count by twos to 20 down the side of your paper. On the right half, count by fours to 40 down the side of your paper. Draw lines to match products that appear in both columns.

Fluency Practice

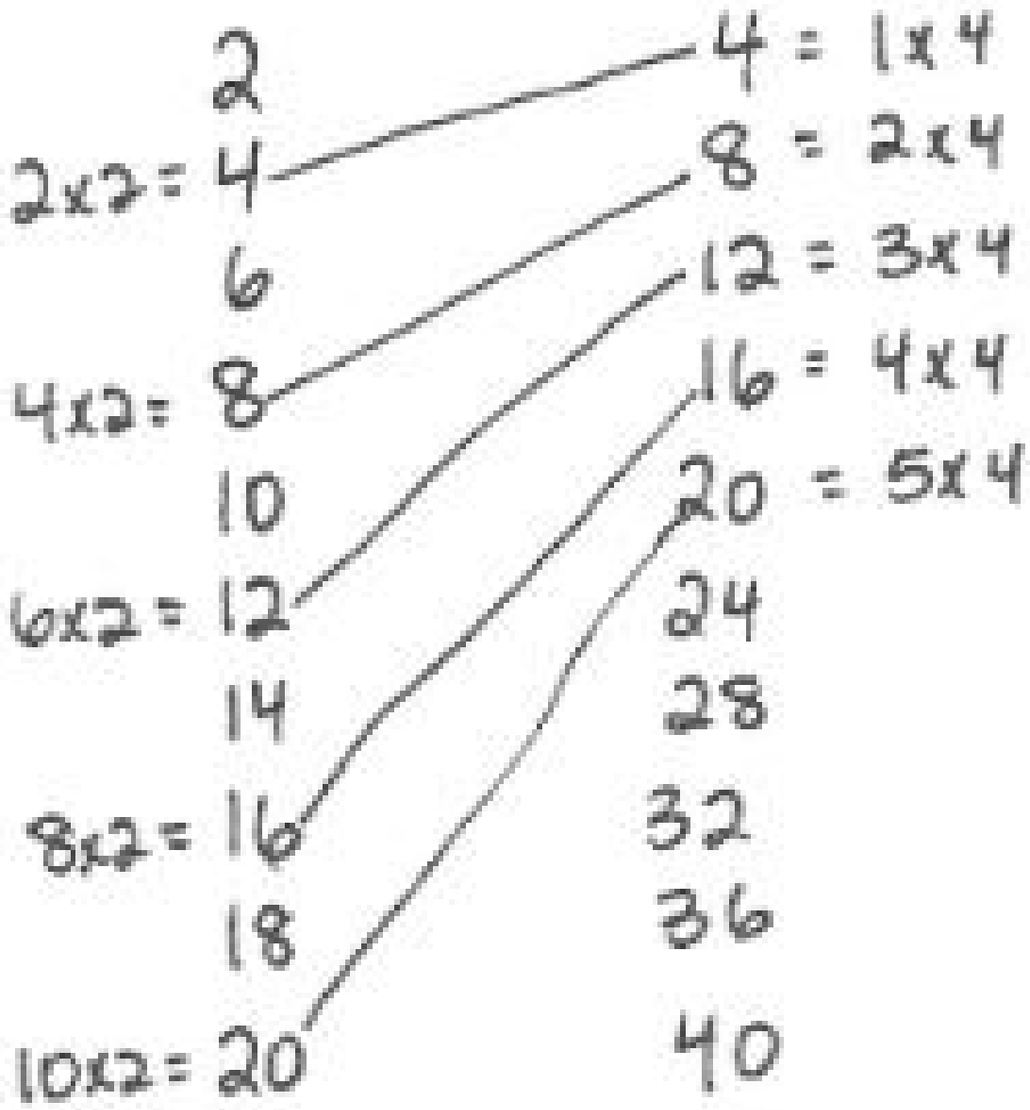
Find the Common Products



Write the complete equations next to their products.

Fluency Practice

Find the Common Products

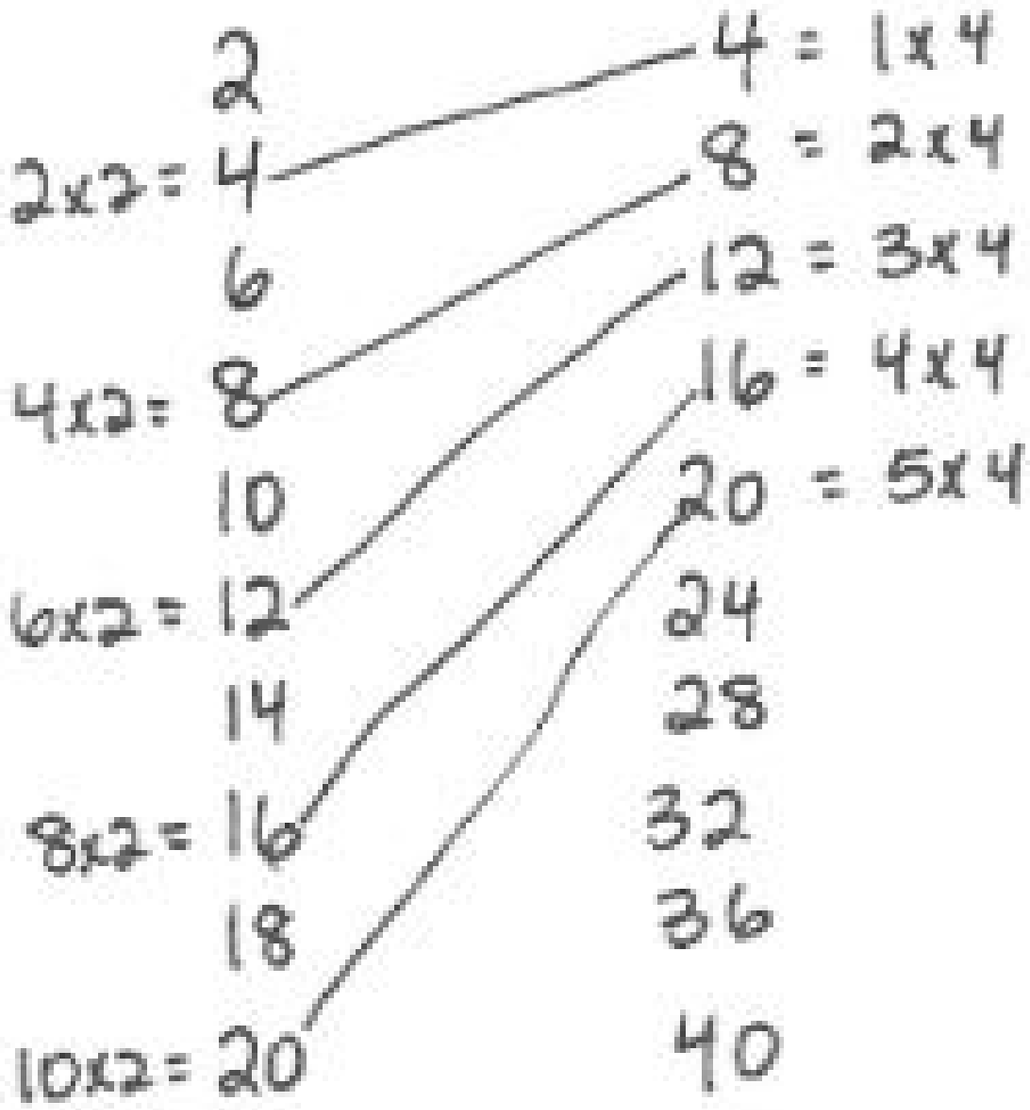


2 × 2 = ×4

Say the equation, including all factors.

Fluency Practice

Find the Common Products

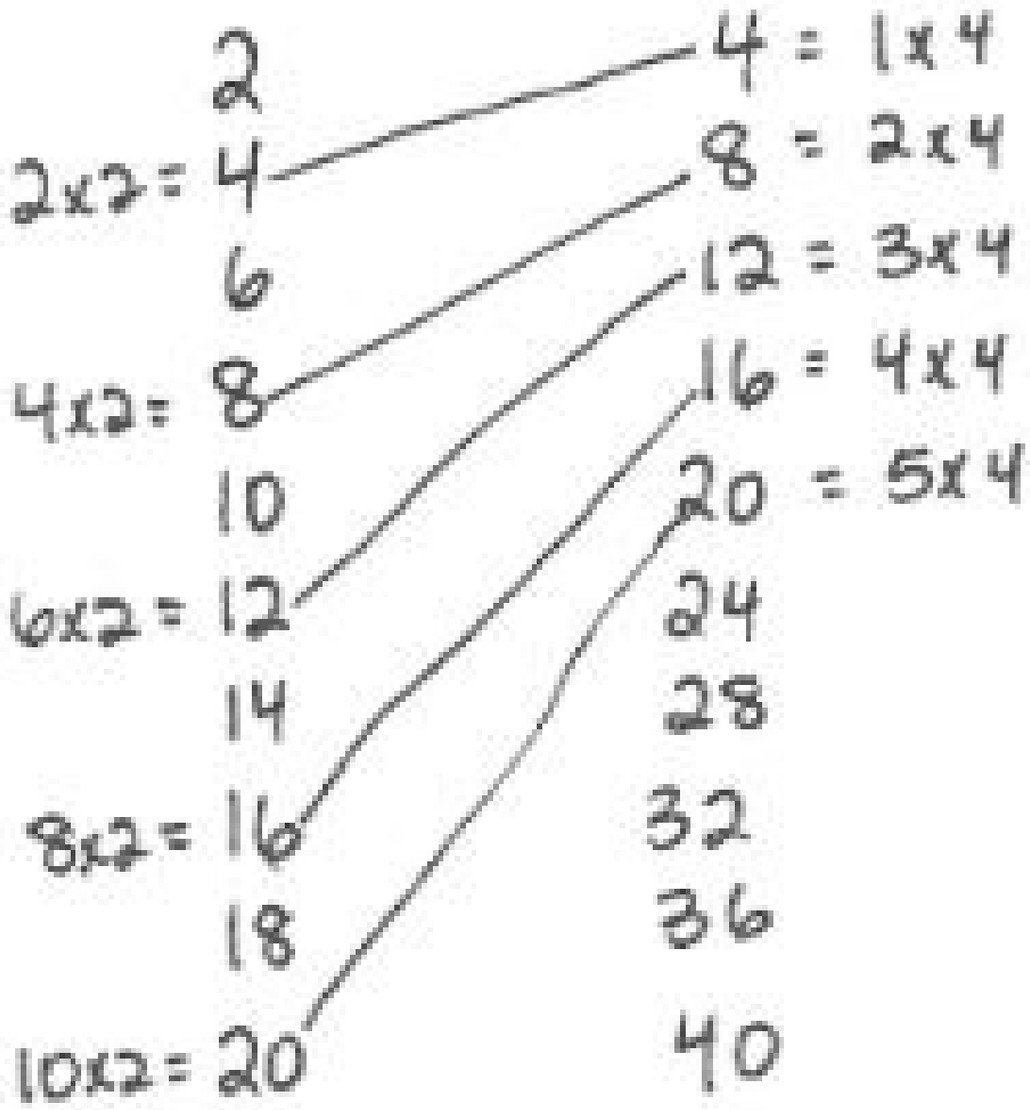


2 × 2 = 1 × 4

Say the equation, including all factors.

Fluency Practice

Find the Common Products

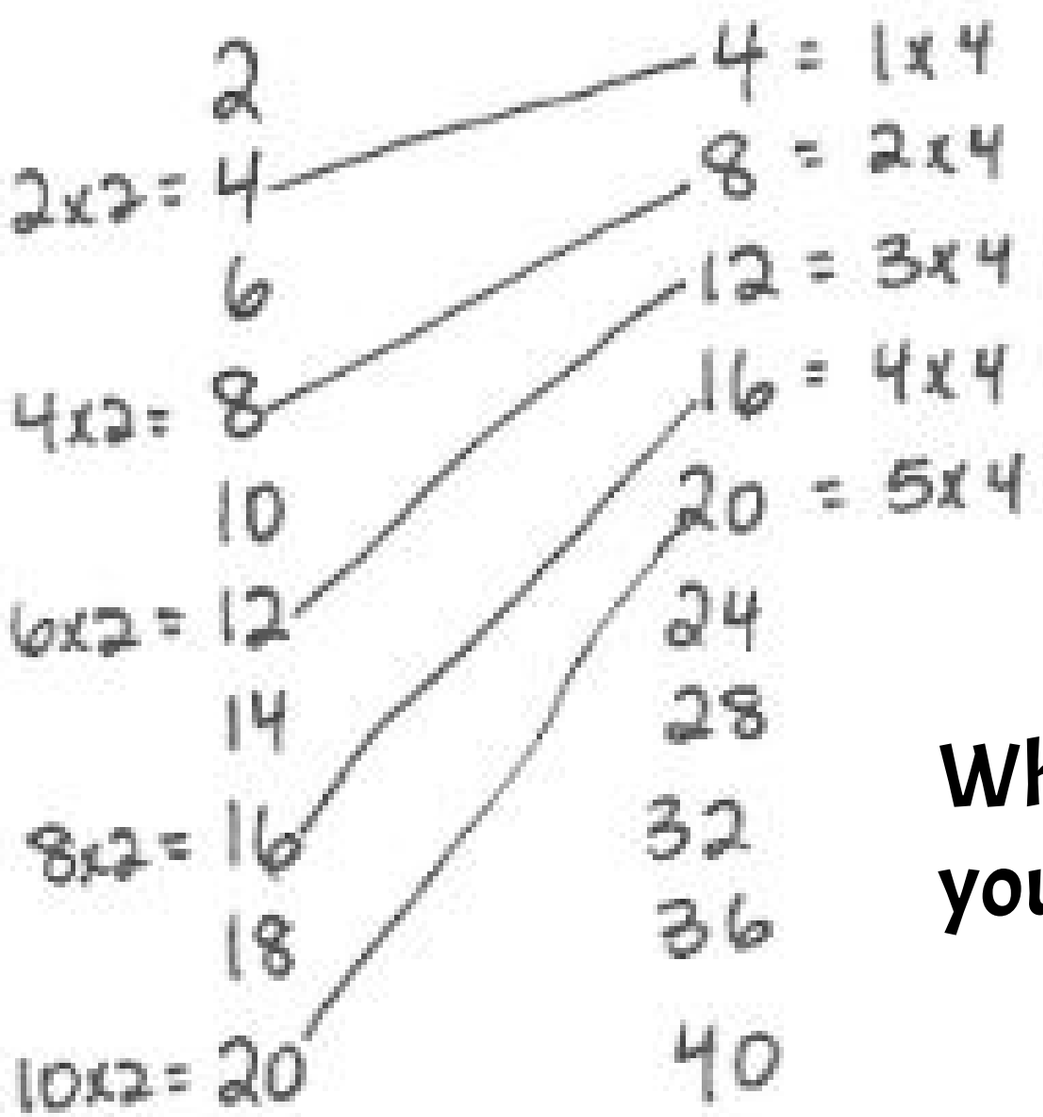


2 × 2 = 1 × 4

Write the remaining equal facts as equations.

Fluency Practice

Find the Common Products



2x2 = 1x4
4x2 = 2x4
6x2 = 3x4
8x2 = 4x4
10x2 = 5x4

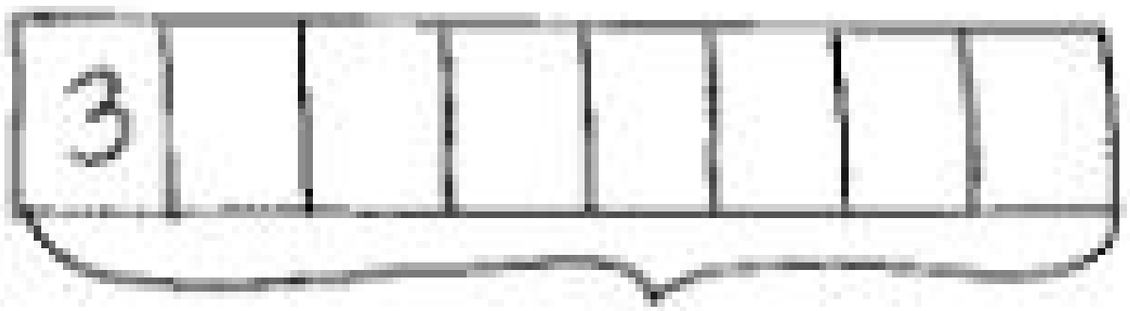
What patterns do you notice in your equations?

Application Problem

Eric makes a shape with 8 trapezoid pattern blocks. Brock makes the same shape using triangle pattern blocks. It takes 3 triangles to make 1 trapezoid. How many triangle pattern blocks does Brock use?

Application Problem

Eric makes a shape with 8 trapezoid pattern blocks. Brock makes the same shape using triangle pattern blocks. It takes 3 triangles to make 1 trapezoid. How many triangle pattern blocks does Brock use?



Brock uses 24 triangle pattern blocks.

Concept Development

Materials

Pattern blocks

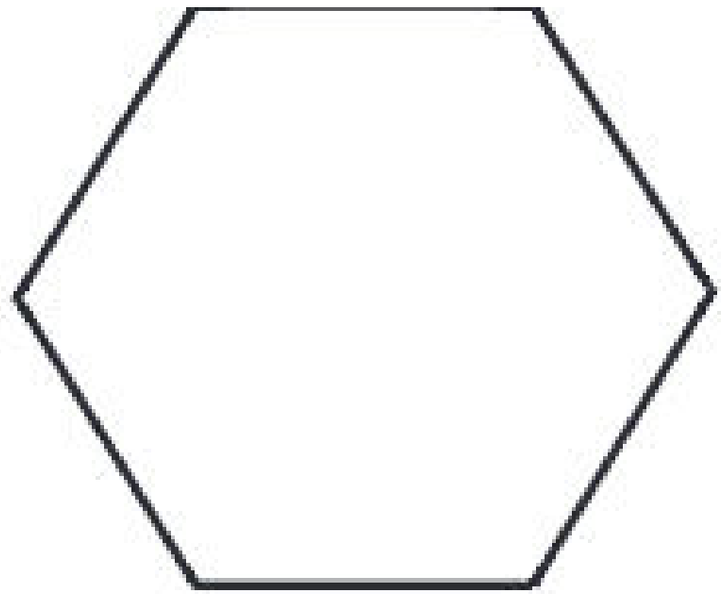
Pattern set

Concept Development

Look at Problem 1 on your Problem Set. Discuss with a partner whether you think Shape A or B takes up more space. Be prepared to explain your answer.

Concept Development

Shape A: _____ triangles

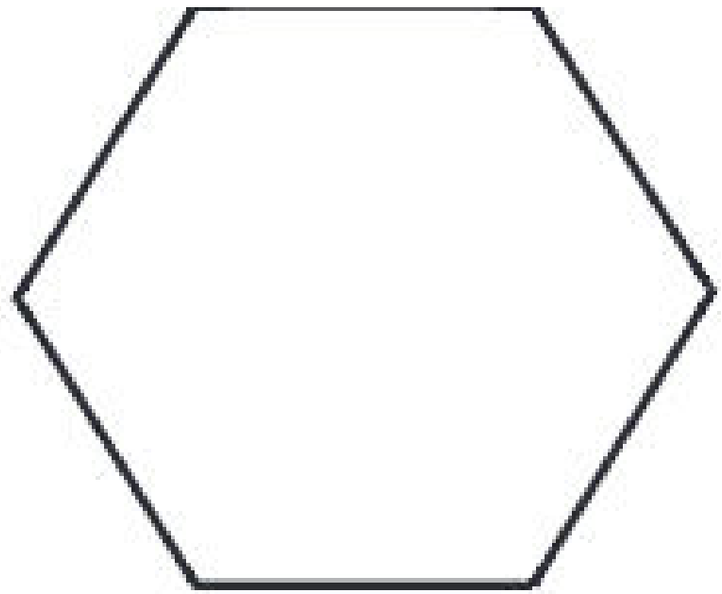


Shape B: _____ triangles

Use triangle pattern blocks to cover Shapes A and B. Be sure the triangles do not have gaps between them, do not overlap, and do not go outside the sides of the shapes.

Concept Development

Shape A: _____ triangles



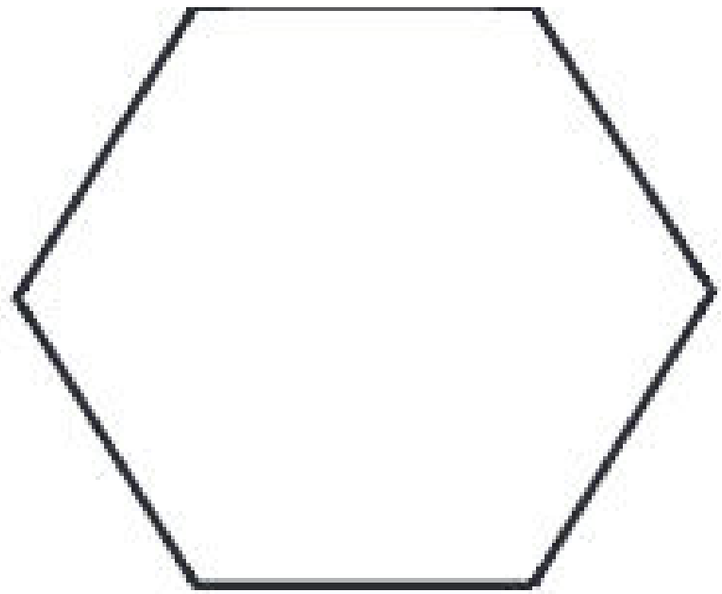
Shape B: _____ triangles

What did you notice about the number of triangles it takes to cover Shapes A and B?

Answer Problem 1 on your Problem Set.

Concept Development

Shape A: _____ triangles

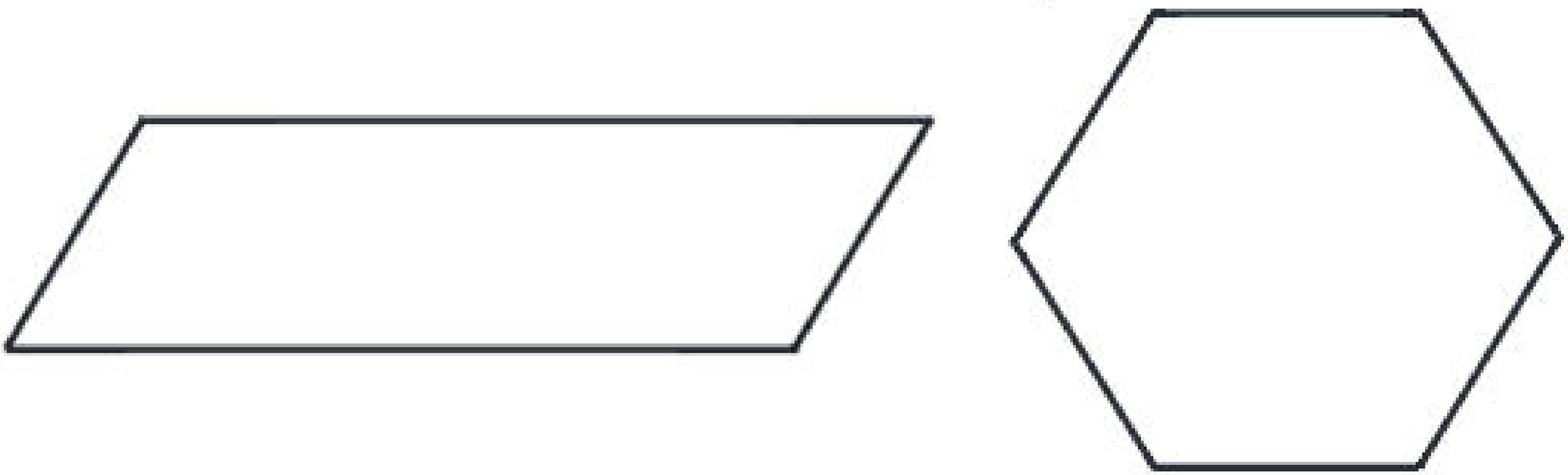


Shape B: _____ triangles

Do all the triangles you used to cover Shapes A and B take up the same amount of space?

What does that mean about the amount of space taken up by Shapes A and B?

Concept Development



Repeat the process of using pattern blocks to cover Shapes A and B with the rhombus and trapezoid pattern blocks. Students record their work on Problems 2 and 3 in the Problem Set.

Concept Development

What is the relationship between the size of the pattern blocks and the number of pattern blocks it requires to cover Shapes A and B?

Concept Development

What is the relationship between the size of the pattern blocks and the number of pattern blocks it requires to cover Shapes A and B?

The bigger the pattern block, the smaller the number of pattern blocks it requires to cover these shapes. The bigger pattern blocks, like the trapezoid, cover more area than the triangles. That means it takes fewer trapezoids to cover the same area as the triangles.

Answer problem 4 on your problem set.

Concept Development

_____ squares

Use square pattern blocks to cover the rectangle in Problem 5. Be sure the squares do not have gaps between them, do not overlap, and do not go outside the sides of the rectangle.

Concept Development

_____ squares

How many squares did you need to cover the rectangle?

Answer Problem 5 on your Problem Set.

Concept Development

_____ squares

The area of the rectangle is 6 square units. Why do you think we call them square units?

Concept Development

_____ squares

Use trapezoid pattern blocks to cover the rectangle in Problem 5. Be sure the trapezoids do not have gaps between them, do not overlap, and do not go outside the sides of the rectangle.

Concept Development

_____ squares

Use this information to help you answer Problem 6 on your Problem Set.

Concept Development

I'm going to say an area in square units, and you are going to make a rectangle with your pattern blocks having that area.

Which pattern blocks will you use?

Concept Development

The squares because the units for area that you are telling us are square units!

Here we go! Four square units.

Concept Development

The squares because the units for area that you are telling us are square units!

Here we go! Four square units.

Twelve square units.

Concept Development

The squares because the units for area that you are telling us are square units!

Here we go! Four square units.

Twelve square units.

Nine square units.

Concept Development

The squares because the units for area that you are telling us are square units!

Here we go! Four square units.

Twelve square units.

Nine square units.

Eight square units.

Debrief

Talk to a partner. Do you think you can use square pattern blocks to cover Shapes A and B in Problem 1? Explain your answer.

How many triangle pattern blocks does it take to cover a rhombus pattern block? Use that information to say a division fact that relates the number of triangles it takes to cover Shape A to the number of rhombuses it takes to cover the same shape. (6 ÷ 2 = 3.)

Explain to a partner how you used square pattern blocks to find the area of the rectangle in Problem 5.

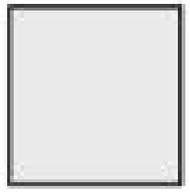
What new math vocabulary did we use today to communicate precisely about the amount of space taken up by a shape? (Area.)

Which units did we use to measure area? (Square units.)

How did the Application Problem connect to today's lesson?

Exit Ticket

Name _____ Date _____

Each  is 1 square unit. Do both rectangles have the same area? Explain how you know.