

Tangram Puzzles

Discuss

Make a large square with all seven tans.

Do not give up!
Interesting problems
take time!

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Julia

I try to match the sides of the pieces to the sides of the square. Where will a large triangle fit?

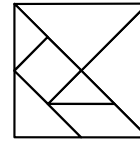
Roberto

I match the angles of the pieces to the angles of the square. Should I rotate or flip a piece?

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Tangram Puzzles (SG p. 305)



There is one solution. The square can be rotated and flipped into 8 configurations.

Homework (SG p. 306)

Students' tangrams will vary.

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Homework

Use a set of tangram pieces to make a tangram using all seven tans. The pieces must be placed edge to edge. Trace only the outline of your tangram design so that it can be a puzzle to be solved. Below are some example tangrams showing each tan.

Here are the seven tans that make the tangram:

Here is the outline of the tangram design. Do not trace each tan.

Try to build these tangrams.

Chris

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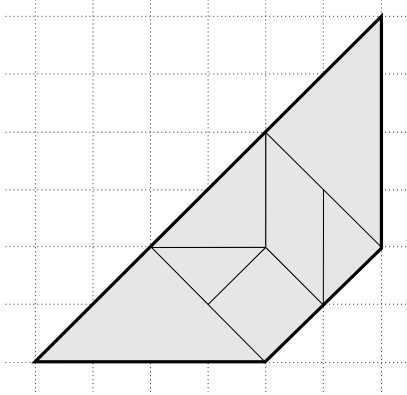
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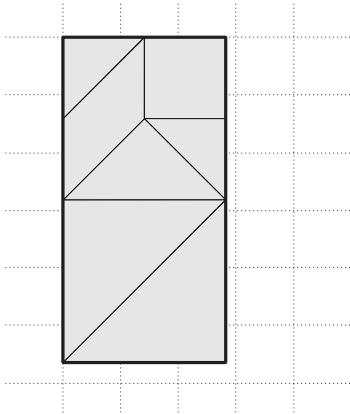
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Tangram Puzzles 1–4 (SAB pp. 425–428)

Puzzle 1: Trapezoid



Puzzle 2: Rectangle



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Tangram Puzzles 1–4

Puzzle 1: Trapezoid

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Name _____ Date _____

Puzzle 2: Rectangle

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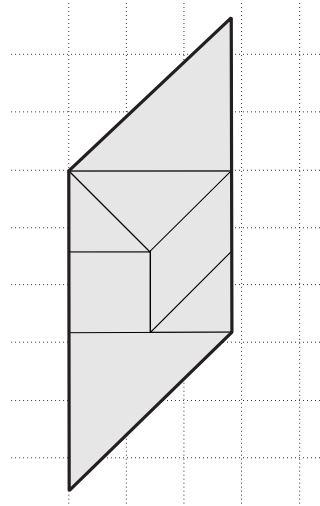
Puzzle 3: Parallelogram

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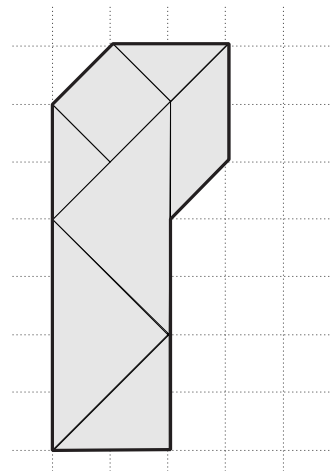
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Puzzle 3: Parallelogram



Puzzle 4



Name _____ Date _____

Puzzle 4: _____
Name the Puzzle

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Tangram Puzzle Table* (SAB p. 429)

Tangram Puzzle Table

Puzzle	No. of Sides	No. of Vertices	No. of Right Angles	Area (sq. in.)	Perimeter (inches)
Square	4	4	4	16	16
Trapezoid	4	4	0	16	19½
Rectangle (non-square)	4	4	4	16	17
Parallelogram	4	4	0	16	19
Puzzle 4	7	7	3	16	19

Date _____

Name _____

Tangram Puzzle Table

Puzzle	No. of Sides	No. of Vertices	No. of Right Angles	Area (sq. in.)	Perimeter (inches)
Square					
Trapezoid					
Rectangle (non-square)					
Parallelogram					
Puzzle 4					

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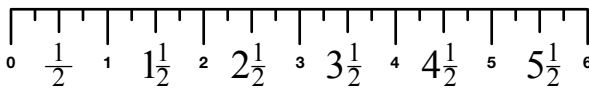
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Measuring Lines (SAB p. 431)

Questions 1–3

1.



2. A. 3 inches
 B. 4 inches
 C. 3½ inches
3. A. 3½ inches
 B. 3 inches
 C. 4 inches

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Measuring Lines

1. Label the halves on the picture of the ruler.

2. Measure the lines on the left to the nearest half inch. Write your measurements in the space provided.

A. _____

B. _____

C. _____

3. Measure the lines on the left to the nearest half inch. Decide if each line is closest to 3, 3½, or 4 inches.

A. _____

B. _____

C. _____

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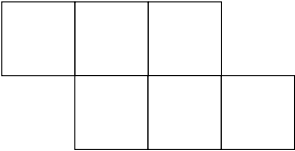

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*Answers and/or discussion are included in the lesson.

Name _____ Date _____

Shapes with Six Tiles

1. The shape below is made from 6 square tiles.

A. Show or tell how to find the perimeter.

B. Show or tell how to find the area.

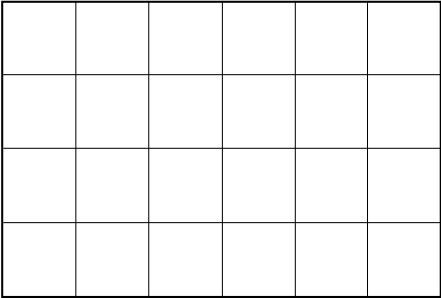
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Name _____ Date _____

2. A. Using six square tiles, make a shape that has a different perimeter than the shape in Question 1. Trace the shape on the grid.



B. Show or tell how to find the perimeter.

C. Show or tell how to find the area.

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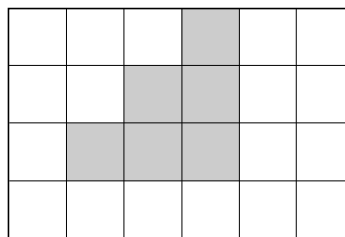
Shapes with Six Tiles (TG pp. 1–4)

Questions 1–5

1. **A.** 12 inches; Methods for finding perimeter will vary. Possible response: I counted all the edges around the shape.
- B.** 6 square inches; Methods for finding area will vary. Possible response: I counted each square. Every tile is one square inch, so the area is 6 square inches.

Shapes will vary for Questions 2–3. One sample shape is given in Question 2A:

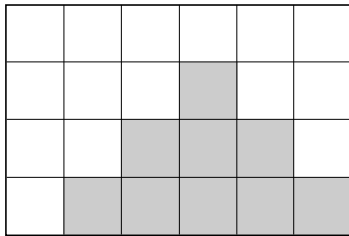
2. **A.** Sample shape:



- B.** Perimeter will vary based on shape. Sample shape's perimeter: 12 inches; Methods for finding perimeter will vary. Possible response: I measured the outline of the shape and added the inches.
- C.** 6 square inches; Explanations will vary.

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3. **A.** Shapes will vary.
B. Perimeter will vary based on shape.
C. 6 square inches; Explanations will vary.
4. **A.** The three shapes have the same area, 6 square inches.
B. Yes, different shapes can have the same area but different perimeters. For example, the shape in Question 1 has an area of 6 square inches and a perimeter of 12 inches. I used the same 6 tiles to make a shape with 6 square inches, but it had a different perimeter.
5. **A.** Shapes will vary. Sample shape:



B. Based on shape in Question 5A.

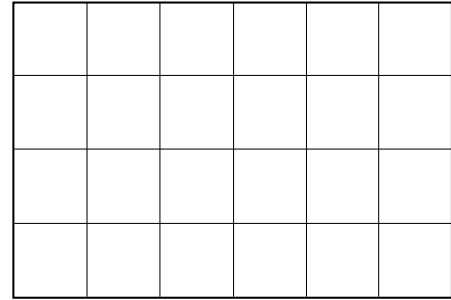
My Tile Shape

No. of Sides	No. of Vertices	Area (sq. in.)	Perimeter (inches)
12	12	9	16

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Name _____ Date _____

3. **A.** Using six square tiles, make another shape that has a different perimeter than the shapes in Questions 1 and 2. Trace the shape on the grid.



B. Show or tell how to find the perimeter.

C. Show or tell how to find the area.

4. **A.** Compare the shapes in Questions 1–3. What do you notice about the area of the three shapes?

B. Can different shapes have the same area but different perimeters? Give an example to support your thinking.

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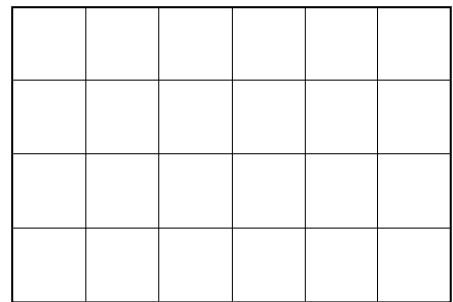
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Name _____ Date _____

5. **A.** Use square tiles to make an interesting shape. Trace the shape on the grid.



B. Complete the table below with information about your shape.

My Tile Shape

No. of Sides	No. of Vertices	Area (sq. in.)	Perimeter (inches)

Shapes with Six Tiles

Feedback Box	Expectation	Check In	Comments
Describe and analyze two-dimensional shapes using their properties. [Q# 5]	E1		
Recognize that shapes can have the same area but different perimeters. [Q# 4]	E8		
Measure the area and perimeter of two-dimensional shapes. [Q# 1–3, 5]	E10		

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