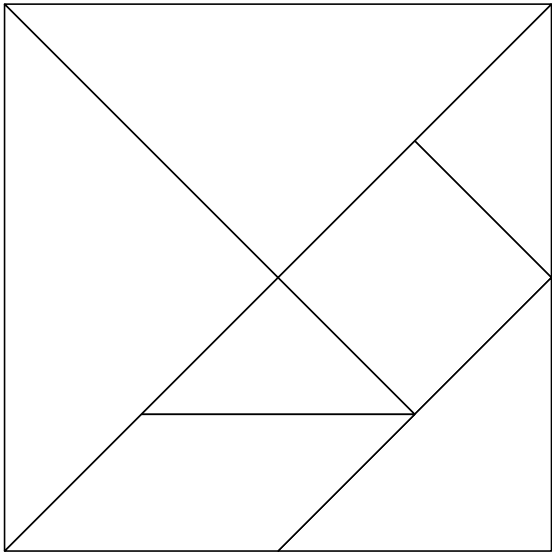


Exploring Tangrams

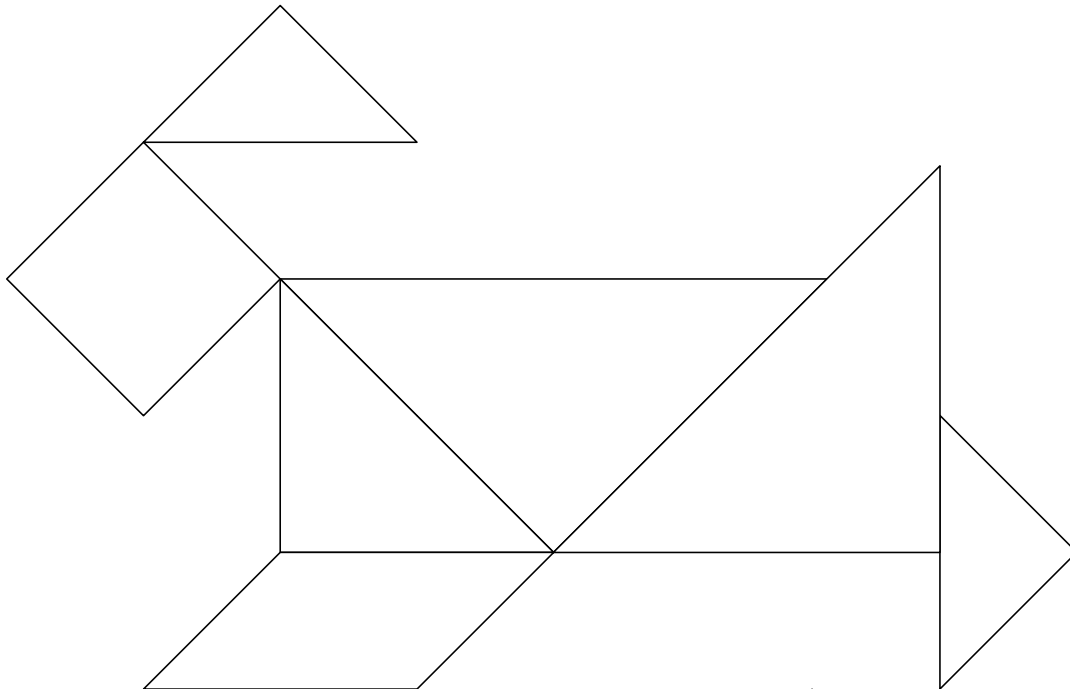
Goal Solve tangram puzzles.

You will need scissors and a ruler.

1. Trace and cut out the 7 tans.



2. Use all 7 tans to solve the dog puzzle.



3. Make another tangram puzzle. Give it to someone at home to solve.

Answers will vary.

At-Home Help

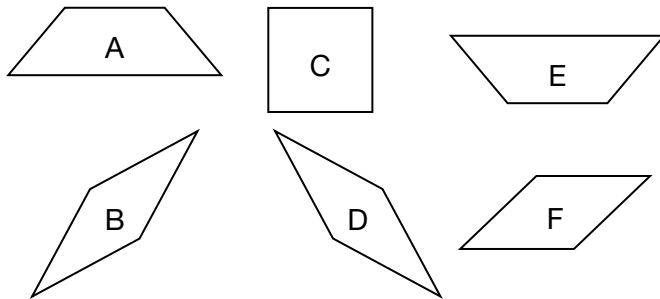
A **tangram** is an ancient Chinese puzzle. It has the 7 shapes, or tans, shown at the left.

A **parallelogram** is a shape that has 4 sides with opposite sides that are **parallel**, or always the same distance apart.

Describing Congruent Shapes

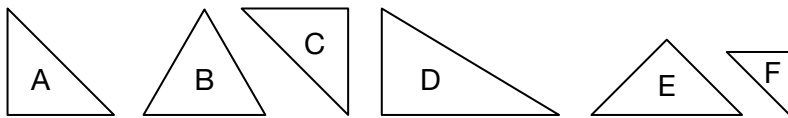
Goal Match and describe congruent shapes.

1. Identify the letters of pattern blocks shown that are congruent.



 A and E are congruent.
 B and D are congruent.

2. Identify the letters of the shapes that are congruent.



 A, C, and E are all congruent.

3. Trevor has 4 coins that total \$1.55. Will any of the coins be congruent? Explain. Yes. For example, Trevor likely has 1 \$1 coin, 2 quarters,
 and 1 nickel, so the 2 quarters will be congruent.

4. Find 2 or more sets of congruent shapes in your home.

Describe them. For example, the kitchen chairs are all the same size and shape.

 My bed and my brother's bed are the same size and shape.

At-Home Help

Congruent shapes are identical in size and shape.

In the tangram on page 57, there are 2 sets of congruent shapes: the 2 large triangles and the 2 small triangles.

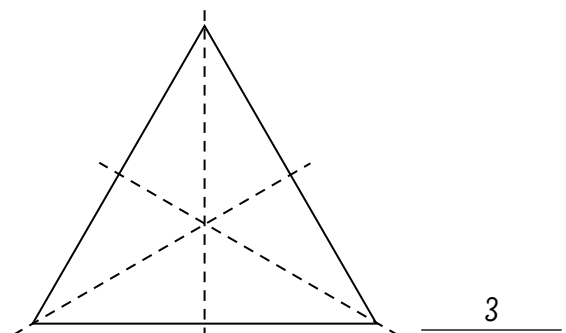
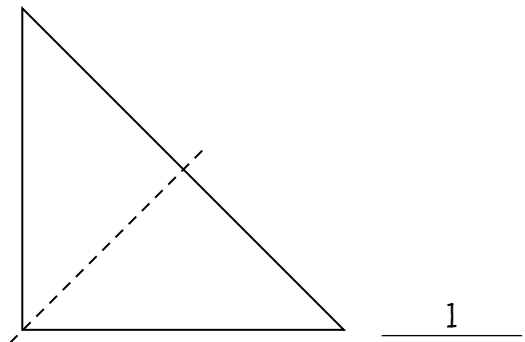
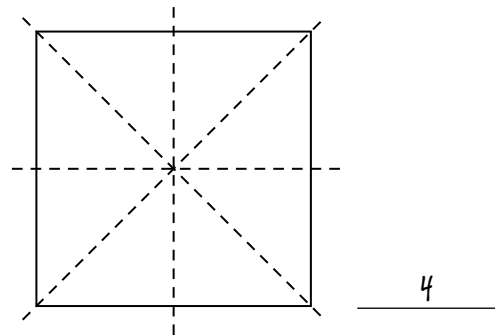
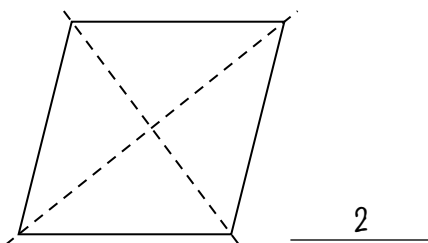
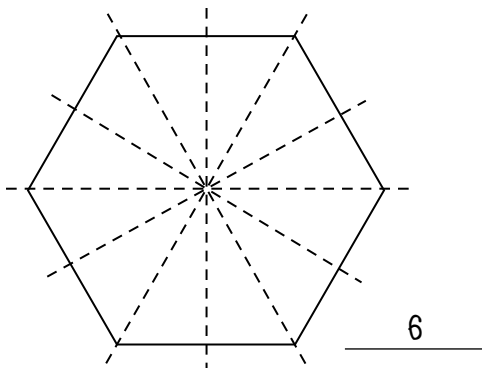
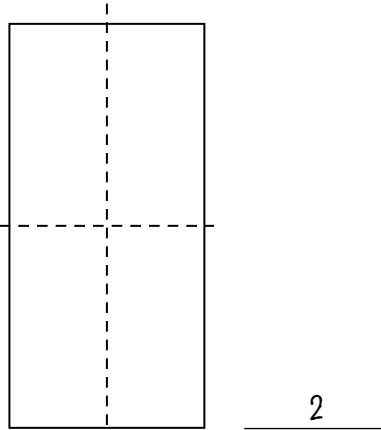
Symmetry

Goal

Identify lines of symmetry in 2-D shapes.

You will need scissors and a ruler.

1. a) Trace and cut out each shape.
- b) Fold each shape to find all of its lines of symmetry.
- c) Using the fold lines on the cutout shapes, draw all the lines of symmetry onto the shapes on this page.
- d) Write the number of lines of symmetry beside each shape.



At-Home Help

A **symmetrical** shape is one that if folded in half, the halves match. The fold line is a **line of symmetry**.

A **rhombus** is a parallelogram with 4 equal sides. The bottom left shape is a rhombus.

Communicate About Symmetry

Goal Use math language to describe line symmetry in 2-D shapes.

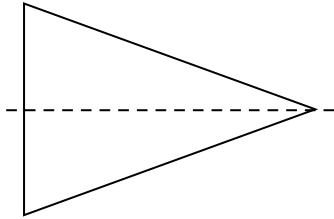
Use the Communication Checklist.

At-Home Help

Communication Checklist

- Did you show the right amount of detail?
- Did you include a diagram?
- Did you use math language?

1. a) Find all the lines of symmetry in this shape.



- b) Describe how you found the lines of symmetry.

For example, I traced and cut out the triangle. I folded it several ways,

but only found 1 line of symmetry.

- c) What are the strengths of your description?

For example, I used enough detail and I used math language.

- d) How can you improve your description?

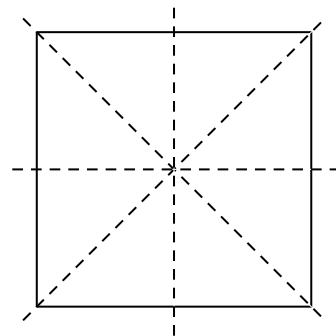
For example, I could have drawn a diagram, but the diagram was right above.

2. Ben says a square has exactly 2 lines of symmetry. Explain how you know that he is wrong.

Ben doesn't have all the lines of symmetry. I know

that the lines between opposite corners are also

lines of symmetry, like this:

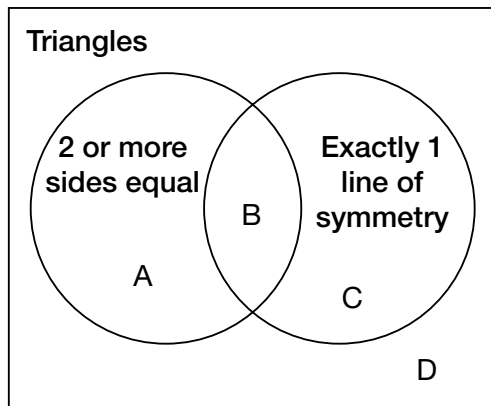
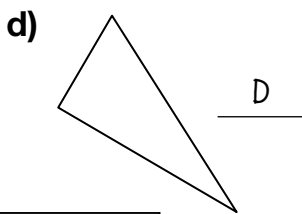
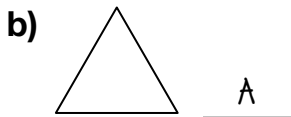
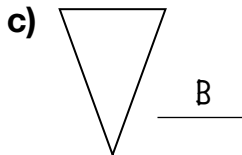


Sorting 2-D Shapes

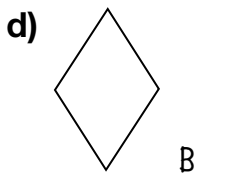
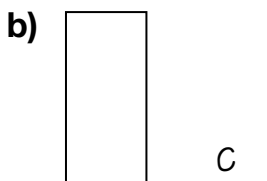
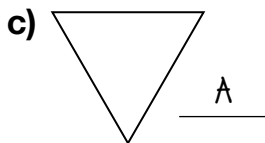
Goal

Compare and sort 2-D shapes.

1. Sort the triangles. Beside each triangle, write the letters of the part of the Venn diagram where the triangle belongs.

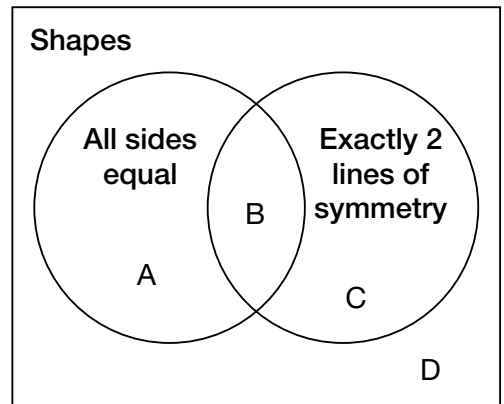
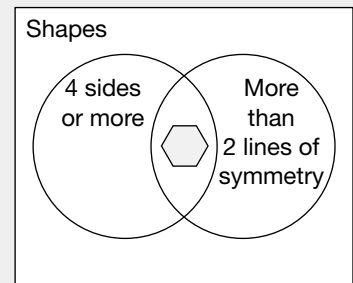


2. Sort the shapes. Beside each shape, write the letters of the part of the Venn diagram where the shape belongs.



At-Home Help

Shapes can be sorted by attributes. This Venn diagram shows that the hexagon has both sorting attributes.



Geometry Patterns

Goal

Describe, extend, and create geometry patterns.

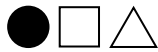
1. a) Identify the attributes of this pattern. Which attributes change according to a pattern?



shape and colour

both

- b) Sketch the next 3 shapes in the pattern.



- c) Describe the pattern. The pattern is black circle, white square, white triangle, black triangle, and then it repeats. The circles are always black. The squares are always white. Every second triangle is black.

At-Home Help

This geometry pattern has 2 attributes: shape and size.



Both attributes change according to a pattern.

The pattern is big pentagon, big triangle, big square, small triangle, and then it repeats. There are 3 big shapes, then 1 small shape. Every other shape is a triangle.

2. a) Create a pattern in which size and colour change.

Answers will vary. For example:



- b) Extend your pattern. ● ●○

- c) Describe your pattern using math language. The pattern is big black circle, small black circle, big white circle, small black circle, big black circle, small white circle, big black circle, small black circle, big white circle, and then it repeats.
There are 2 black shapes and then 1 white. There is 1 big and then 1 small.

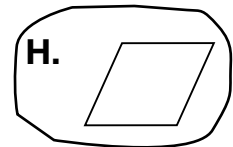
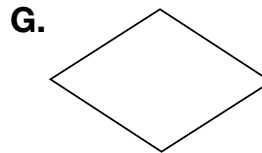
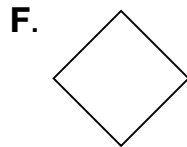
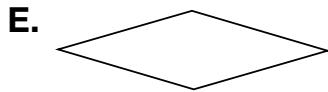
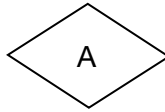
Test Yourself

Circle the correct answer.

1. Which shape is found most often in a tangram?

- A. parallelogram B. square **C. triangle** D. rhombus

2. Which shape is congruent to shape A?



3. How many lines of symmetry does shape A in Question 2 have?

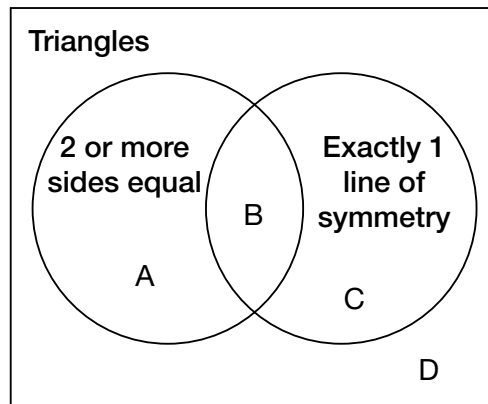
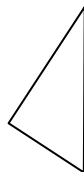
- A. none B. 1 **C. 2** D. 4

4. Which statement is **not** true?

- E.** The sides of a shape must all be equal for the shape to have symmetry.
- F. A square has more lines of symmetry than a parallelogram.
- G. You can find lines of symmetry by folding a shape in half in different ways to look for halves that match.
- H. A rhombus has 2 lines of symmetry.

5. Where does this triangle belong in the Venn diagram?

- A. part A
B. part B
C. part C
D. part D



6. What are the next 2 shapes in this pattern?



- E.** F. G. H.