

Name _____

Find and Draw Lines of Symmetry

Essential Question How do you find lines of symmetry?

Common Core
Geometry—
4.G.A.3

MATHEMATICAL PRACTICES
MP1, MP7, MP8

Unlock the Problem

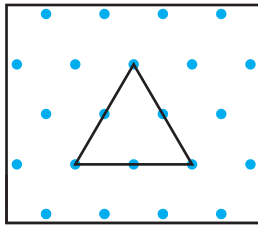
How many lines of symmetry does each polygon have?

Activity 1 Find lines of symmetry.

Materials ■ isometric and square dot paper ■ straightedge

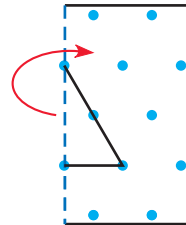
STEP 1

Draw a triangle like the one shown, so all sides have equal length.



STEP 2







Fold the triangle in different ways to test for line symmetry. Draw along the fold lines that are lines of symmetry.



• Is there a line of symmetry if you fold the paper horizontally?

STEP 3

Repeat the steps for each polygon shown. Complete the table.

Polygon						
	Triangle	Square	Parallelogram	Rhombus	Trapezoid	Hexagon
Number of Sides	3					
Number of Lines of Symmetry	3					

- In a regular polygon, all sides are of equal length and all angles are equal. What do you notice about the number of lines of symmetry in regular polygons?




MATHEMATICAL PRACTICES 8

Use Repeated Reasoning
How many lines of symmetry does a circle have? Explain.

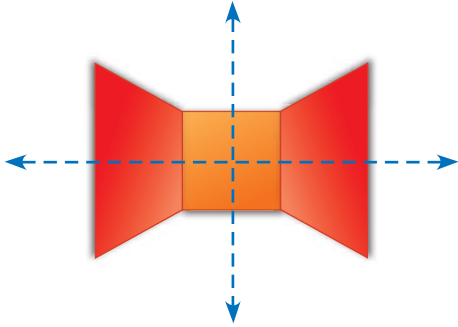
Activity 2 Make designs that have line symmetry.

Materials ■ pattern blocks

Make a design by using more than one pattern block.
Record your design. Draw the line or lines of symmetry.

 **ERROR Alert**
To avoid errors, you may use a mirror to check for line symmetry.

Make a design with 2 lines of symmetry.



Make a design with 1 line of symmetry.

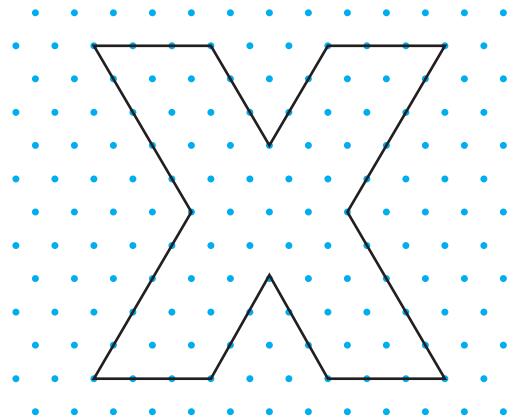
Make a design with more than 2 lines of symmetry.

Make a design with zero lines of symmetry.

Share and Show

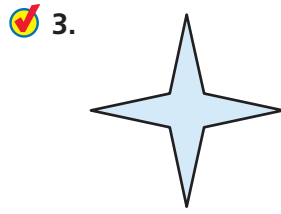
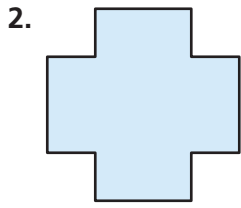


1. The shape at the right has line symmetry.
Draw the 2 lines of symmetry.



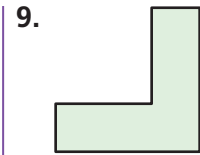
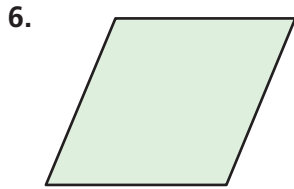
Name _____

Tell whether the shape appears to have zero lines, 1 line, or more than 1 line of symmetry. Write *zero*, *1*, or *more than 1*.



On Your Own

Tell whether the shape appears to have zero lines, 1 line, or more than 1 line of symmetry. Write *zero*, *1*, or *more than 1*.

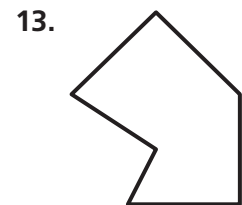
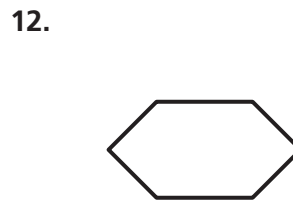


Math
Talk

MATHEMATICAL PRACTICES 1

Analyze Explain how you can find lines of symmetry for a shape.

Practice: Copy and Solve Does the design have line symmetry? Write *yes* or *no*. If your answer is *yes*, draw all lines of symmetry.



14. **GO DEEPER** Draw a figure that has 5 sides and exactly 1 line of symmetry.

Problem Solving • Applications

Use the chart for 15–17.

15. **GO DEEPER** Which letters appear to have only 1 line of symmetry?

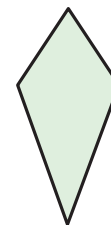
16. Which letters appear to have zero lines of symmetry?

17. **THINK SMARTER** The letter C has horizontal symmetry. The letter A has vertical symmetry. Which letters appear to have both horizontal and vertical symmetry?

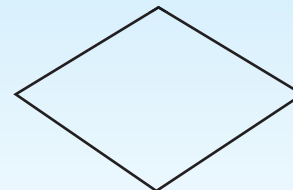
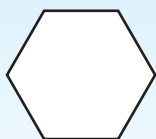
18. **MATHEMATICAL PRACTICE 3** **Verify the Reasoning of Others** Jeff says that the shape has only 2 lines of symmetry.

Does his statement make sense? Explain.

A	H	S
B	I	T
C	J	U
D	L	V
E	N	W



19. **THINK SMARTER +** Match each figure with the correct number of lines of symmetry it has.



0 lines of symmetry

1 line of symmetry

2 lines of symmetry

More than 2 lines of symmetry

Personal Math Trainer



Name _____

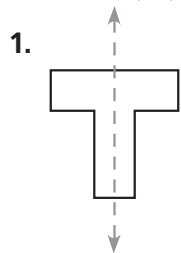
Find and Draw Lines of Symmetry

Tell whether the shape appears to have zero lines, 1 line, or more than 1 line of symmetry.

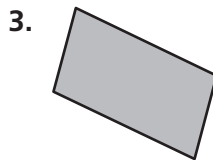
Write *zero*, *1*, or *more than 1*.

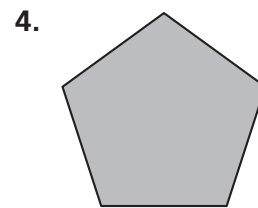


COMMON CORE STANDARD—4.G.A.3
Draw and identify lines and angles, and classify shapes by properties of their lines and angles.



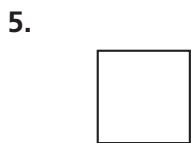


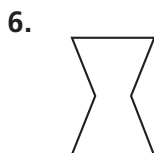




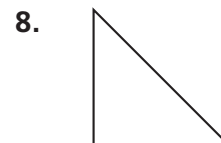
Does the design have line symmetry? Write *yes* or *no*.

If your answer is yes, draw all lines of symmetry.



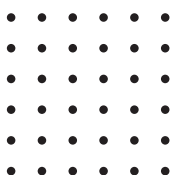




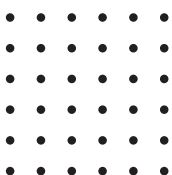


Draw a shape for the statement. Draw the line or lines of symmetry.

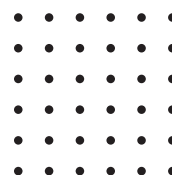
9. zero lines of symmetry



10. 1 line of symmetry



11. 2 lines of symmetry



Problem Solving



Use the chart for 12.

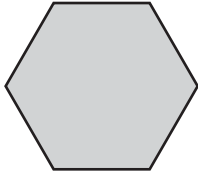
0	2	3	4
5	6	8	9

12. Which number or numbers appear to have 2 lines of symmetry?

13. **WRITE** *Math* Draw a picture of a figure that has more than 3 lines of symmetry. Draw the lines of symmetry.

Lesson Check (4.G.A.3)

1. How many lines of symmetry does this shape appear to have?
2. Draw a shape that has exactly 1 line of symmetry.



Spiral Review (4.NF.A.1, 4.NF.B.4b, 4.NF.C.6, 4.G.A.2)

3. Richard practiced each of 3 piano solos for $\frac{5}{12}$ hour. Expressed in simplest form, how long did he practice in all?
4. Write a decimal that is equivalent to three and ten hundredths.

5. Lynne used $\frac{3}{8}$ cup of flour and $\frac{1}{3}$ cup of sugar in a recipe. What number is a common denominator for $\frac{3}{8}$ and $\frac{1}{3}$?
6. Kevin draws a figure that has four sides. All sides have the same length. His figure has no right angles. What figure does Kevin draw?
