

**SAMPLE PAGES FOR
THE READY
EOG ASSESSMENT**

**THE
COMPETITIVE
EDGE**

THIRD GRADE MATHEMATICS

with COMMON CORE STATE STANDARDS

2012 EDITION

JANE HERFORD

CPC

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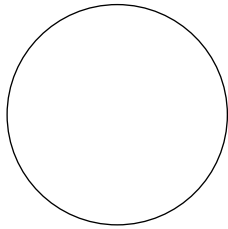
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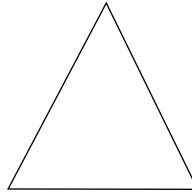
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PART I—TWO-DIMENSIONAL SHAPES

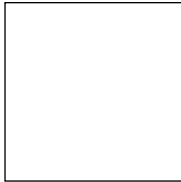
Plane figures are two-dimensional (flat) shapes.



Circle



Triangle



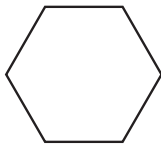
Square



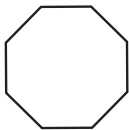
Rectangle



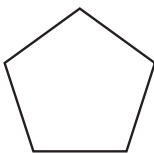
A closed plane figure that is made up of three or more straight sides is a **polygon**. They are named by the number of sides and vertices they have.



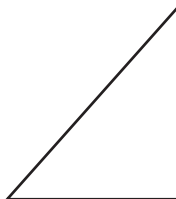
Hexagon – a polygon with 6 straight sides and 6 vertices



Octagon – a polygon with 8 straight sides and 8 vertices



Pentagon – a polygon with 5 straight sides and 5 vertices



Triangle – a polygon with 3 straight sides and 3 vertices

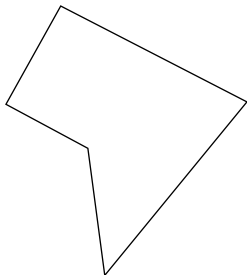


Quadrilateral – a polygon with 4 straight sides and 4 vertices

Regular polygons have all sides the same length. **Irregular polygons** have sides of different lengths.

EXAMPLES

Is this a pentagon?



The definition of a pentagon is a polygon with 5 straight sides and 5 vertices. When you count the sides, there are 5. The sides are straight.

Yes, this is a pentagon.

Which of the following figures is a regular octagon?

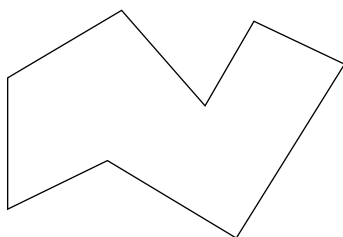


Figure #1

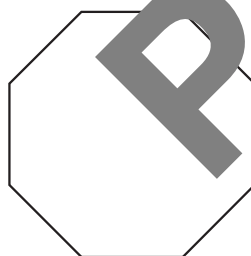


Figure #2

Even though both figures have 8 sides, and they are both octagons, only Figure #2 has 8 sides that are the same length. Figure #1 has sides of different lengths.

So, Figure #2 is a regular octagon.

Now, compare two different figures. How are they alike? How are they different?

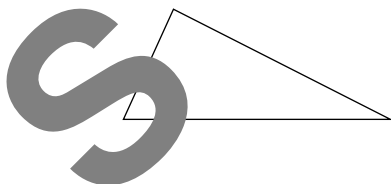


Figure #1

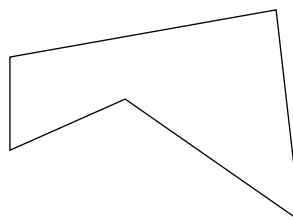


Figure #2

Ways the figures are alike:

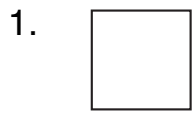
- Both are polygons.
- Both have sides of different lengths.

Ways the figures are different:

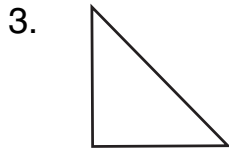
- They have a different number of sides.

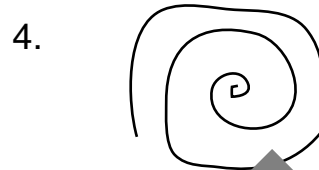
PRACTICE

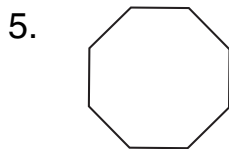
Name each polygon. If it is not a two-dimensional polygon, write "not a polygon."
For the two-dimensional figures that are not polygons, explain why they are not.



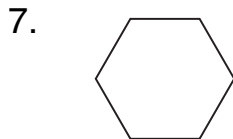


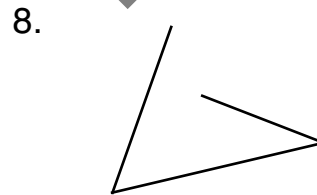


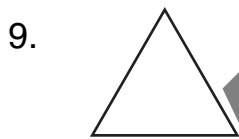


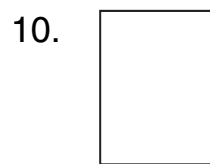


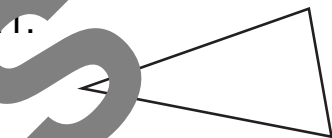


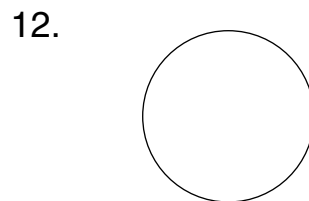






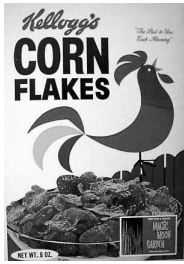






What polygons are represented by these two-dimensional objects?

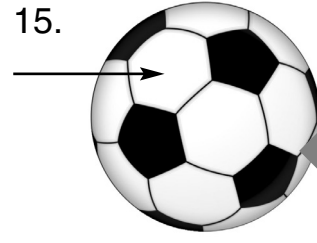
13.



14.



15.



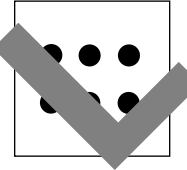
16.



17.



18.



Answer each of the following:

19. Which polygon has 5 straight sides and 5 vertices? _____

20. Which polygon has 3 straight sides and 3 vertices? _____

21. Which polygon has 8 straight sides and 8 vertices? _____

22. Define quadrilateral. Draw an example.

23. Define irregular shape. Draw an example.

24. Explain how the figures below are alike and different.

Figure #1

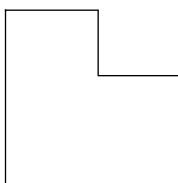
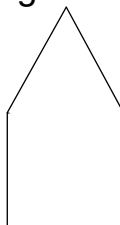
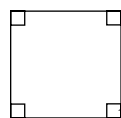
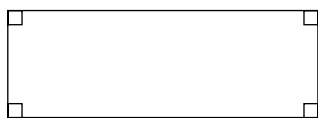


Figure #2

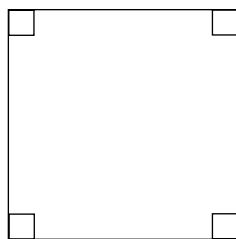


PART 2—QUADRILATERALS

A **quadrilateral** is a polygon with 4 straight sides and 4 vertices. When the sides of a polygon meet to form square corners, it can be shown by using a square corner symbol.



square corner symbol

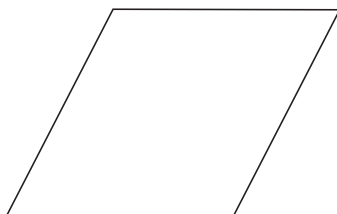
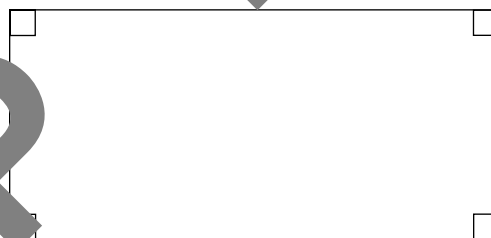


Squares

A quadrilateral with four square corners and four sides with the same length is a square.

Rectangles

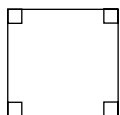
A quadrilateral with four square corners formed by its sides is called a rectangle. All of the sides do not have to be the same length.



Rhombuses

A quadrilateral with four sides that are the same length is called a rhombus.

EXAMPLES



Name the figure. What are all the quadrilateral groups to which this figure belongs?

This figure is a square. It has 4 sides that are the same length and has four square corners.

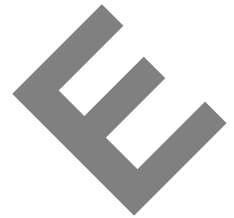
Wait a second! The figure is also a rectangle because it has 4 square corners. Remember, the rectangle does *not* have to have sides that are different lengths.) It is also a rhombus because it has 4 sides that are the same length.

So, this figure can be a square, a rectangle, and a rhombus.

Naming it a *square* would be **best**, because it has 4 equal sides and 4 square corners.

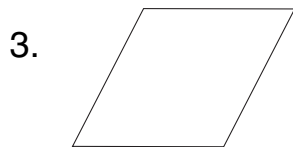
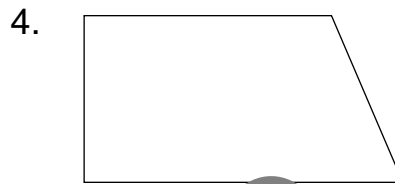
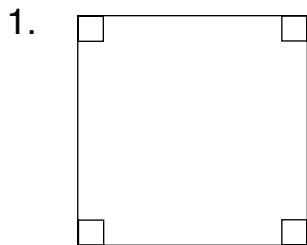
Quadrilateral Relationships

Quadrilateral	Rectangle	Rhombus
Rectangles Squares Rhombuses	Squares	Squares

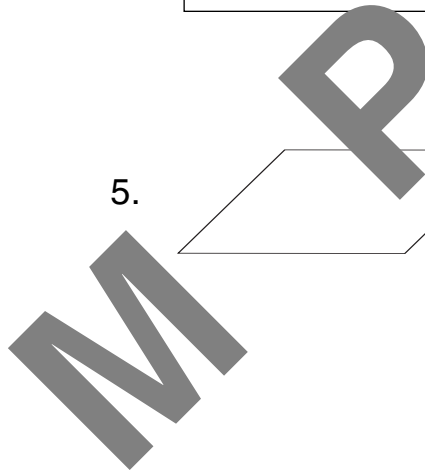
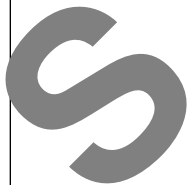


PRACTICE

Write the name or names that describe each figure in questions 1–5.



6. Tyler says that all rhombuses are squares. Seth says that all squares are rhombuses. Who is correct? Explain.



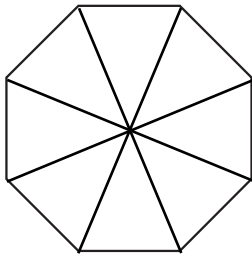
PART 3—AREA OF SHAPES

Shapes can be broken down into **parts with equal areas**. The area of each part is a fraction of the whole shape's area.

$$\text{Area of one part of a figure} = \frac{1}{\text{total number of parts}} \text{ of the whole figure}$$

If a figure is broken into 4 equal parts, then the area of each part is $\frac{1}{4}$ of the area of the whole figure.

EXAMPLES



An octagon can be broken into 8 equal parts. **Describe the area of each part as a fraction of the area of the octagon.**

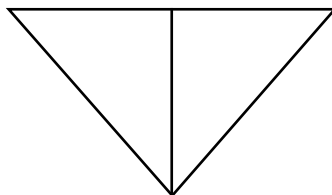
The area of each part is $\frac{1}{8}$ of the area of the whole octagon.

How do you find this?

First, you find the denominator. The octagon is divided into 8 equal parts, so 8 is our denominator. Then you name the area of one part, so the numerator is 1.

So, the area of each part is $\frac{1}{8}$ the area of the octagon.

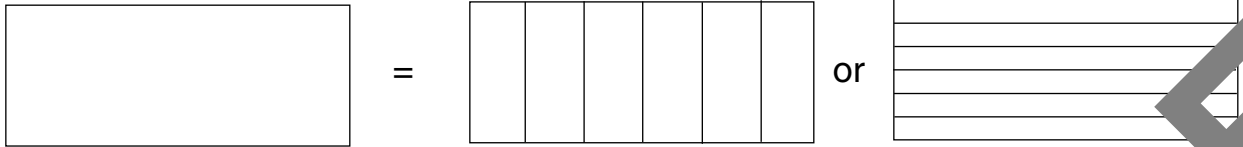
What is the area of each part as a fraction of the area of this triangle?



The area of each part of this triangle as a fraction is $\frac{1}{2}$ the area of the whole triangle.

EXAMPLE

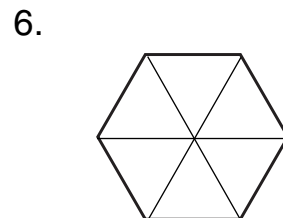
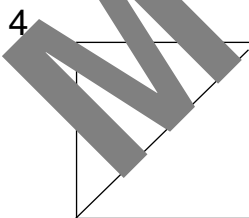
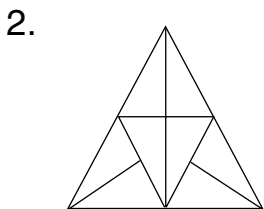
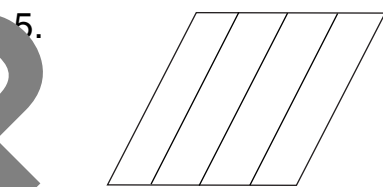
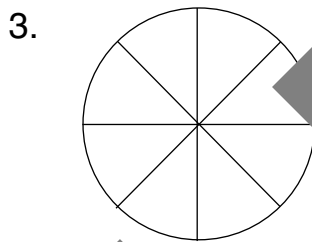
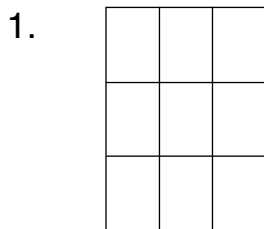
Draw two ways that you can divide this rectangle into 6 equal pieces.



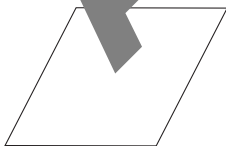
Each part represents $\frac{1}{6}$ of the area of the rectangle. Each part is formed by breaking the large rectangle into 6 equal parts.

PRACTICE

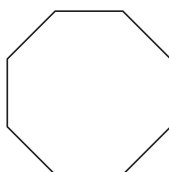
Write a fraction that describes the area of one part of each figure in questions 1–6.



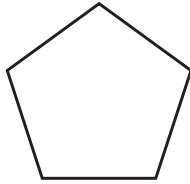
7. Divide the figure into 4 equal pieces.



8. Divide the figure into 8 equal pieces.



9. Divide the figure into five equal pieces.



10. What fraction of the area of Figure #1 is the area of Figure #2? Explain how you found your answer.

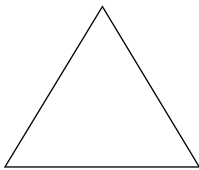


Figure #1



Figure #2

11. What fraction of the area of Figure #1 is the area of Figure #2? Explain how you found your answer.



Figure #1

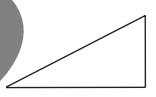


Figure #2

REVIEW

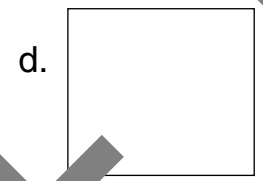
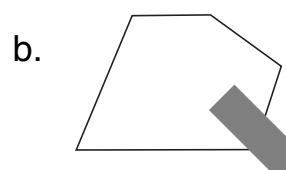
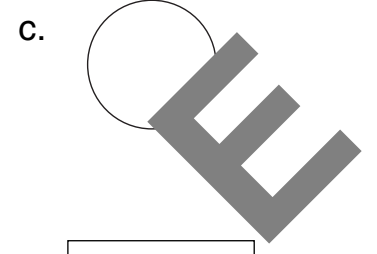
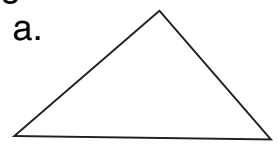
1. A quadrilateral with four square corners and sides that do **not** have to be the same length is a _____.
 - a. rhombus
 - b. square
 - c. rectangle
 - d. triangle
2. A figure with 8 sides is _____.
 - a. a square
 - b. a pentagon
 - c. an octagon
 - d. a rectangle
3. A quadrilateral with 4 equal sides and 4 square corners is a _____.
 - a. square
 - b. rectangle
 - c. triangle
 - d. hexagon
4. A pentagon has ____ sides.
 - a. 4
 - b. 5
 - c. 6
 - d. 8

5. What is the name of this figure?



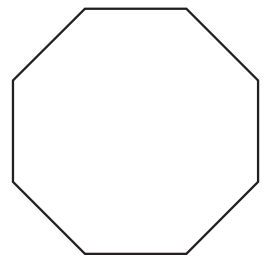
- a. square
- b. rectangle
- c. rhombus
- d. triangle

6. Which of the following is **not** a polygon?

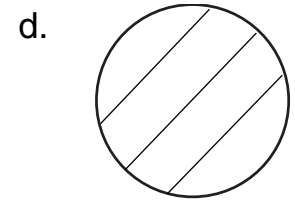
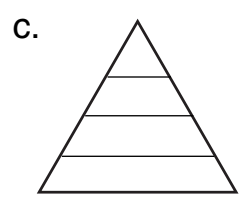
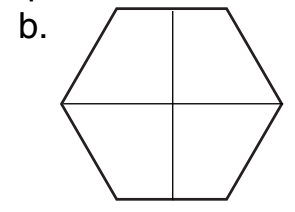
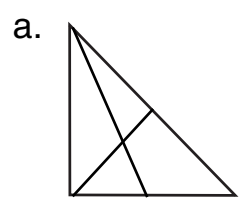


7. Which of the following describes this figure?

- a. pentagon
- b. hexagon
- c. octagon
- d. quadrilateral

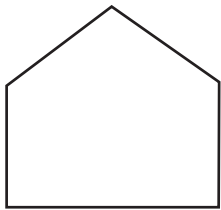


8. Which of the following figures is divided into 4 equal parts?

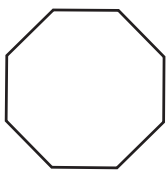


9. Which of the following is **not** a polygon?

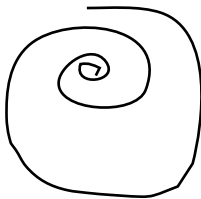
a.



b.



c.



d.



10. Write the names of each figure.

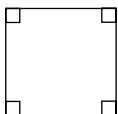


Figure #1



Figure #2

How are the figures alike and different?

11. Name 2 figures that have the same number of sides as a square.

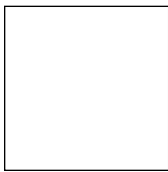
12. Is this a true statement?

All rhombuses have 4 square corners.

If not true, make the statement true.

13. Andrew says that all squares are rectangles. Do you agree? Explain your answer. Draw a picture to help explain your answer.

14. Marvin and Jacob divided a square into 2 equal parts.



Square



Marvin's part



Jacob's part

Jacob says that the area of his part is the same as the area of Marvin's part.
Do you agree? Explain your answer.

15. Draw a rectangle. Break your figure apart into 8 equal parts. Now break this same figure apart in a different way. What fraction of the area of the whole figure is the area of each part?

16. Draw a figure that has four square corners and four sides of the same length.
What is the name of your figure?