One Cut Sort

Can one cut make two triangles?

2.GM.1.3 "Compose and decompose two-dimensional shapes using triangles, squares, hexagons, trapezoids, and rhombi."

NAME _____ DATE _____

CAN MAKE TWO TRIANGLES

One straight cut can split the shape into exactly two triangles. The triangles fill the whole shape with no gaps.

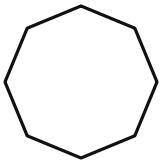
A rectangle can be cut from one corner to the opposite corner.



CANNOT MAKE TWO TRIANGLES

No single straight cut can split the shape into exactly two triangles.

An octagon has too many corners for one cut to make just two triangles.



1 SORT

8 items

Circle YES or NO for each figure, then choose one of each kind and explain how you know in Part 2.

1.

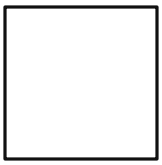


Figure 1

YES NO

2.

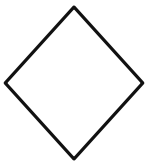


Figure 2

YES NO

3.

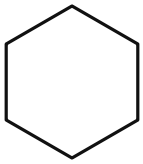


Figure 3

YES NO

4.

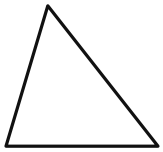


Figure 4

YES NO

5.

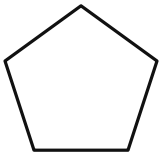


Figure 5

YES NO

6.

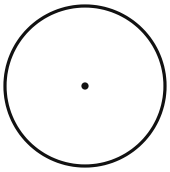


Figure 6

YES NO

7.

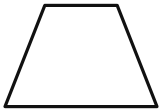


Figure 7

YES NO

8.

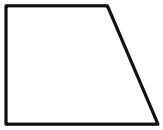


Figure 8

YES NO

2 PROVE IT

Explain your thinking

Choose one of each kind and explain how you know in Part 2.

ITEM # _____ **HOW I KNEW** _____

ITEM # _____ **HOW I KNEW** _____

3 MAKE YOUR OWN

One of each

Draw one new YES shape and one new NO shape. Label each one.

YES

NO

CHALLENGE

Choose a YES figure from Part 1. Draw the cut on it, then name the two pieces.

ANSWER KEY

One Cut Sort

GRADE 2 · 2.GM.1.3

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	**YES**	A cut from one corner to the opposite corner makes two triangles.
2	Figure 2 (rhombus)	**YES**	A cut from one corner to the opposite corner makes two triangles.
3	Figure 3 (hexagon)	**NO**	One straight cut cannot split a hexagon into exactly two triangles.
4	Figure 4 (triangle)	**YES**	A cut from one corner to a point on the opposite side makes two triangles.
5	Figure 5 (pentagon)	**NO**	One straight cut cannot split a pentagon into exactly two triangles.
6	Figure 6 (circle)	**NO**	A straight cut leaves curved edges, so the pieces cannot both be triangles.
7	Figure 7 (trapezoid)	**YES**	A cut from one corner to the opposite corner makes two triangles.
8	Figure 8 (right_trapezoid)	**YES**	A cut from one corner to the opposite corner makes two triangles.

PART 2 · PROVE IT

Task: Choose one of each kind and explain how you know in Part 2.
Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 · MAKE YOUR OWN (SAMPLE ANSWERS)

- **YES**: a parallelogram
- **NO**: a semicircle

Challenge: On Figure 1, draw a line from one corner to the opposite corner. The pieces are two triangles.

For Part 2, accept explanations that show where one cut makes two triangles or why one cut cannot do so. For the challenge, the cut must make two triangles that fill the chosen figure.