

Shape Detectives

Sort closed, straight-sided shapes from other figures.

3.MG.4.b "Classify figures as polygons or not polygons and justify reasoning."

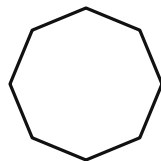
NAME _____

DATE _____

POLYGON

A polygon is a flat, closed shape with at least three straight sides. Its sides meet at their endpoints.

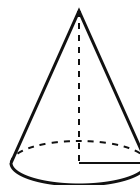
An octagon is closed and has eight straight sides.



NOT A POLYGON

A figure is not a polygon if it is open, has a curved side, or is not a flat closed shape with straight sides.

A cone is solid, not a flat closed shape with straight sides.



1 SORT

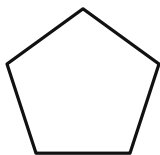
8 items

Circle the tag for each figure. In Prove It, explain two choices: for a polygon, check flat, closed and at least three straight sides; for a nonpolygon, identify a rule it fails.

1. Figure 1

POLYGON

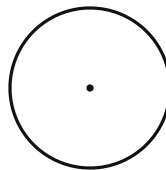
NO POLYGON



2. Figure 2

POLYGON

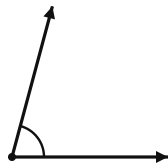
NO POLYGON



3. Figure 3

POLYGON

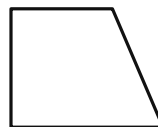
NO POLYGON



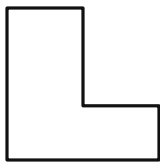
4. Figure 4

POLYGON

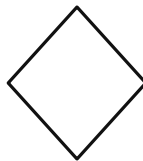
NO POLYGON



5. Figure 5 **POLYGON** **NO POLYGON**



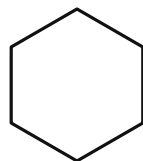
6. Figure 6 **POLYGON** **NO POLYGON**



7. Figure 7 **POLYGON** **NO POLYGON**



8. Figure 8 **POLYGON** **NO POLYGON**



2 PROVE IT _____ Explain your thinking

Pick two items from Part 1. For each one, tell how you knew where it belonged.

ITEM # _____ HOW I KNEW _____

ITEM # _____ HOW I KNEW _____

3 MAKE YOUR OWN _____ One of each

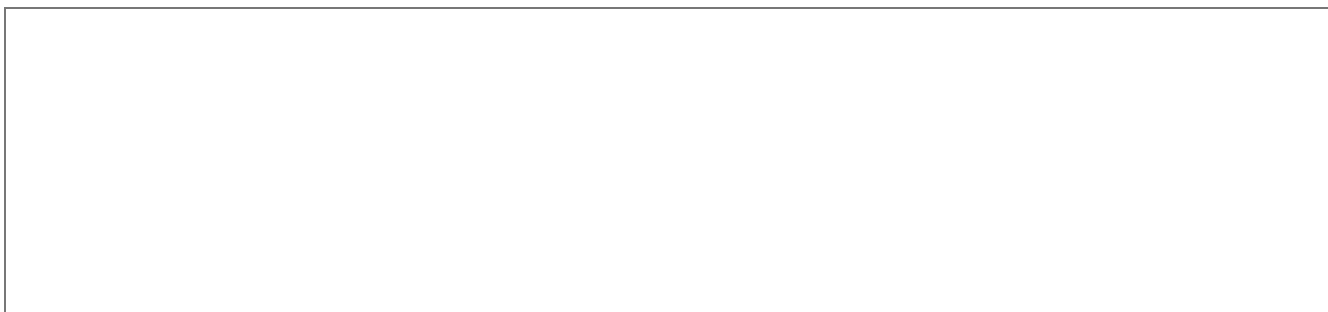
Draw one polygon and one figure that is not a polygon. Label each one.

POLYGON

NO POLYGON

CHALLENGE

Draw an open chain of four straight segments in the box. Explain why it is not a polygon.



PART 1 • SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (pentagon)	POLYGON	It is closed and has five straight sides.
2	Figure 2 (circle)	NO POLYGON	It has a curved edge.
3	Figure 3 (angle 75°)	NO POLYGON	It is not a closed shape.
4	Figure 4 (right_trapezoid)	POLYGON	It is closed and has four straight sides.
5	Figure 5 (polygon)	POLYGON	It is closed and all six sides are straight.
6	Figure 6 (rhombus)	POLYGON	It is a closed shape with four straight sides.
7	Figure 7 (semicircle)	NO POLYGON	One side is curved.
8	Figure 8 (hexagon)	POLYGON	It is closed and has six straight sides.

PART 2 • PROVE IT

Accept any explanation that names the deciding feature from the rule box for the chosen item.

PART 3 • MAKE YOUR OWN (SAMPLE ANSWERS)

- **POLYGON:** A triangle labeled POLYGON.
- **NO POLYGON:** A 35° angle labeled NO POLYGON.

Challenge: Four connected straight segments with a gap between the first and last endpoints. The figure is open, so it is not a polygon.

For a polygon, require all relevant conditions: flat, closed and at least three straight sides. For a nonpolygon, one correctly identified violation is enough, such as a curved edge or an open boundary. A concave shape can be a polygon; an inward corner does not disqualify Figure 5.