

Shape Detectives

Look for closed figures with straight sides.

GRADE 3 • 3.MG.4.b

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

NAME _____

DATE _____

POLYGON RULES

A polygon is a closed, flat figure made only of straight line segments. Its sides meet only at their endpoints and do not cross. A figure with a curve, a gap, or crossing sides is not a polygon.

WORKED EXAMPLE

Is a closed figure with 5 straight sides and no crossing sides a polygon?

1. Check whether the figure is closed. It is closed.
2. Check the sides. All 5 sides are straight.
3. Check whether any sides cross. No sides cross.

Answer: Yes. It is a polygon.

PRACTICE 6 problems

- 1** Figure A is closed and has 4 straight sides. No sides cross. Is it a polygon?

ANSWER _____

- 2** Figure B is closed and has 4 sides, but 1 side is curved. Is it a polygon?

ANSWER _____

- 3** Figure C has 3 straight sides, but there is a gap between 2 endpoints. Is it a polygon?

ANSWER _____

- 4** Figure D is closed and has 6 straight sides. No sides cross. Is it a polygon?

ANSWER _____

- 5** Figure E is closed. It has 2 straight sides and 1 curved side. Is it a polygon?

ANSWER _____

- 6** Figure F is closed and has 4 straight sides, but 2 sides cross in the middle. Is it a polygon?

ANSWER _____

APPLY IT Show your work

- 1** Maya is making a sticker for her water bottle. Her sticker outline is closed and has 4 straight sides that meet only at the corners. Is her sticker outline a polygon? Explain why.

WORK SPACE

ANSWER _____

- 2** At art club, Luis draws a frame around his comic. The frame is closed, with straight sides on the top, left, and right, but the bottom side is curved. Is the frame a polygon? Explain why.

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A closed figure is made of 7 straight sides. One pair of sides crosses in the middle. Is the figure a polygon? Explain your reasoning.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Figure A is closed and has 4 straight sides. No sides cross. Is it a polygon?	Yes, it is a polygon because it is closed and has only straight sides that do not cross.
2	Figure B is closed and has 4 sides, but 1 side is curved. Is it a polygon?	No, it is not a polygon because it has a curved side.
3	Figure C has 3 straight sides, but there is a gap between 2 endpoints. Is it a polygon?	No, it is not a polygon because it is not closed.
4	Figure D is closed and has 6 straight sides. No sides cross. Is it a polygon?	Yes, it is a polygon because it is closed and has only straight sides that do not cross.
5	Figure E is closed. It has 2 straight sides and 1 curved side. Is it a polygon?	No, it is not a polygon because it has a curved side.
6	Figure F is closed and has 4 straight sides, but 2 sides cross in the middle. Is it a polygon?	No, it is not a polygon because its sides cross.

PART 2 • APPLY IT

- Yes. Maya's sticker outline is a polygon because it is closed and has only straight sides that meet at endpoints.** The outline is closed, and all of its sides are straight. The sides meet at endpoints, so it is a polygon.
- No. Luis's frame is not a polygon because it has a curved side.** A polygon must have only straight sides. The curved bottom side means the frame is not a polygon.

CHALLENGE

No. It is not a polygon because two of its sides cross in the middle.

Accept answers that state the key rule: a polygon is closed, has only straight sides, and has sides that meet only at endpoints without crossing. Accept concise equivalent wording such as "not closed" or "has a curve."