Perimeter Detective

Sort shapes by the distance around them.

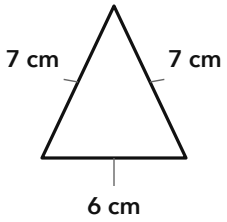
3.GR.C.9 "Solve problems in contexts involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length…"

NAME _____ DATE _____

20 CM AROUND

Add all the side lengths. Choose TWENTY when the perimeter is exactly 20 cm.

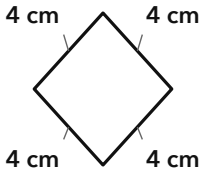
This triangle has a perimeter of 20 cm because 6 + 7 + 7 = 20.



NOT 20 CM AROUND

Choose OTHER when the side lengths add to a perimeter that is not 20 cm.

This rhombus has a perimeter of 16 cm because 4 + 4 + 4 + 4 = 16.



1 SORT

8 items

For Part 1, circle TWENTY or OTHER for each figure; for Part 2, choose one figure from each group and explain how you know.

1.

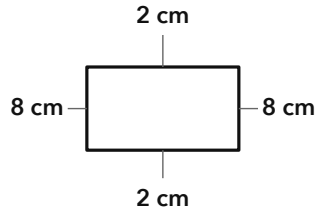


Figure 1

TWENTY OTHER

2.

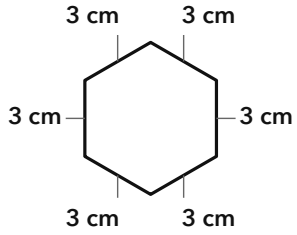


Figure 2

TWENTY OTHER

3.

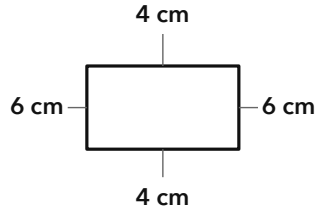


Figure 3

TWENTY OTHER

4.

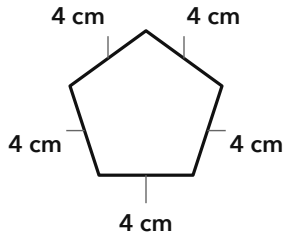


Figure 4

TWENTY OTHER

5.

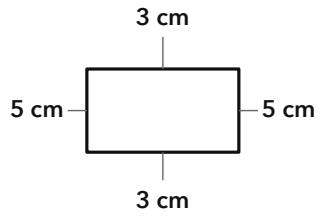


Figure 5

TWENTY OTHER

6.

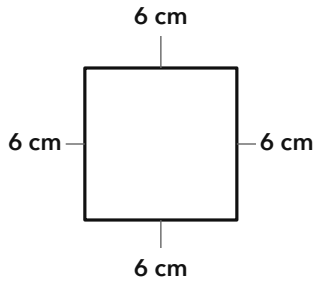


Figure 6

TWENTY OTHER

7.

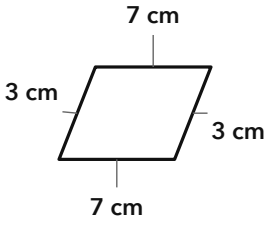


Figure 7

TWENTY OTHER

8.

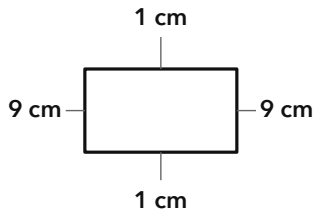


Figure 8

TWENTY OTHER

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

For Part 3, write the side lengths of one new polygon for TWENTY and one new polygon for OTHER.

TWENTY _____

OTHER _____

CHALLENGE

A rectangle has a perimeter of 26 cm. One side is 5 cm long. How long is a side next to it? Show how you know.

ANSWER KEY

Perimeter Detective

GRADE 3 · 3.GR.C.9

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (rectangle)	**TWENTY**	2 + 8 + 2 + 8 = 20 cm.
2	Figure 2 (hexagon)	**OTHER**	Six sides of 3 cm total 18 cm.
3	Figure 3 (rectangle)	**TWENTY**	4 + 6 + 4 + 6 = 20 cm.
4	Figure 4 (pentagon)	**TWENTY**	Five sides of 4 cm total 20 cm.
5	Figure 5 (rectangle)	**OTHER**	3 + 5 + 3 + 5 = 16 cm.
6	Figure 6 (square)	**OTHER**	Four sides of 6 cm total 24 cm.
7	Figure 7 (parallelogram)	**TWENTY**	7 + 3 + 7 + 3 = 20 cm.
8	Figure 8 (rectangle)	**TWENTY**	1 + 9 + 1 + 9 = 20 cm.

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)

- **TWENTY**: A pentagon with sides 2 cm, 3 cm, 4 cm, 5 cm, and 6 cm has a perimeter of 20 cm.
- **OTHER**: A rectangle with sides 2 cm, 7 cm, 2 cm, and 7 cm has a perimeter of 18 cm.

Challenge: The side is 8 cm long because 5 + 8 + 5 + 8 = 26 cm.

For Part 2, accept explanations that add every labeled side and compare the total with 20 cm. For example, Figure 1 totals 20 cm, while Figure 2 totals 18 cm.