Perimeter Detectives

Sort shapes by the distance around them.

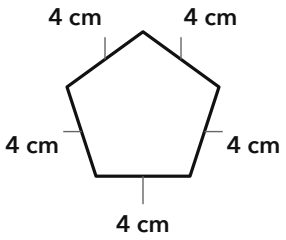
MT.3.MD.8 "Solve problems in context involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length..."

NAME _____ DATE _____

PERIMETER IS 20 CM

Add the lengths of all the sides. Choose this group when the total is 20 cm.

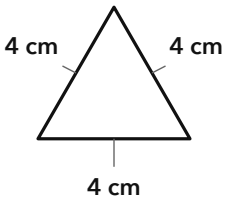
$4 + 4 + 4 + 4 + 4 = 20$ cm.



PERIMETER IS NOT 20 CM

Add the lengths of all the sides. Choose this group when the total is not 20 cm.

$4 + 4 + 4 = 12$ cm.



1 SORT

8 items

Circle the group for each figure, then choose one figure from each group and explain your choices by adding its side lengths.

1.

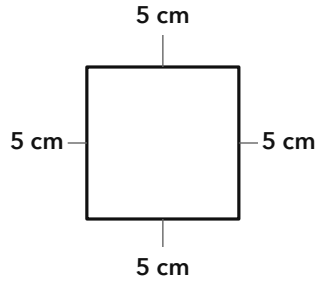


Figure 1

TWENTY OTHER

2.

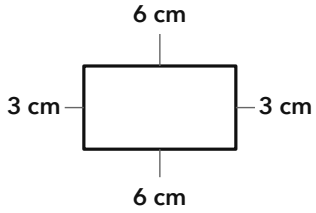


Figure 2

TWENTY OTHER

3.

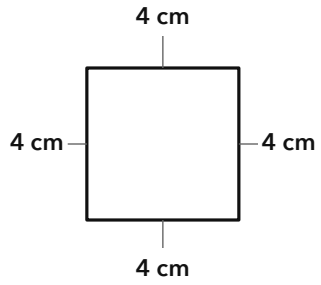


Figure 3

TWENTY OTHER

4.

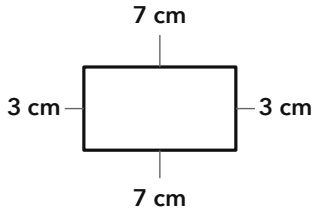


Figure 4

TWENTY OTHER

5.

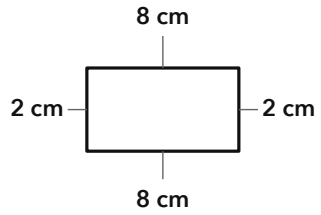


Figure 5

TWENTY OTHER

6.

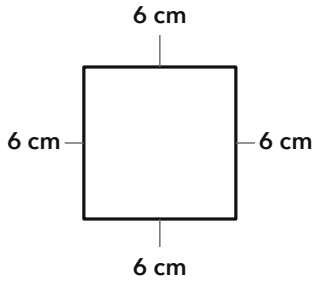


Figure 6

TWENTY OTHER

7.

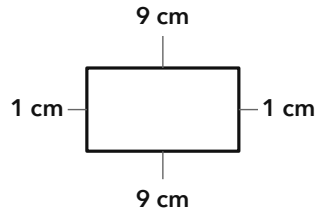


Figure 7

TWENTY OTHER

8.

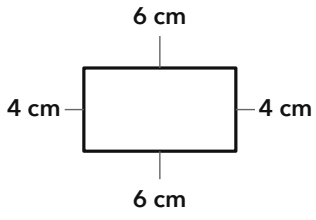


Figure 8

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

Write one new shape with a perimeter of 20 cm and one new shape with a perimeter that is not 20 cm; give all their side lengths.

TWENTY

OTHER

CHALLENGE

Draw two rectangles with different areas but the same perimeter of 20 cm, then label their side lengths and areas.

ANSWER KEY

Perimeter Detectives

GRADE 3 · MT.3.MD.8

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (square)	**TWENTY**	5 + 5 + 5 + 5 = 20 cm.
2	Figure 2 (rectangle)	**OTHER**	6 + 3 + 6 + 3 = 18 cm.
3	Figure 3 (square)	**OTHER**	4 + 4 + 4 + 4 = 16 cm.
4	Figure 4 (rectangle)	**TWENTY**	7 + 3 + 7 + 3 = 20 cm.
5	Figure 5 (rectangle)	**TWENTY**	8 + 2 + 8 + 2 = 20 cm.
6	Figure 6 (square)	**OTHER**	6 + 6 + 6 + 6 = 24 cm.
7	Figure 7 (rectangle)	**TWENTY**	9 + 1 + 9 + 1 = 20 cm.
8	Figure 8 (rectangle)	**TWENTY**	6 + 4 + 6 + 4 = 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 triangle with sides 6 cm, 6 cm, and 8 cm has a perimeter of 20 cm.
- **OTHER**: A square with four 7 cm sides has a perimeter of 28 cm.

Challenge: One rectangle has sides 2, 8, 2, and 8 cm. Its perimeter is 20 cm and its area is 16 square cm. The other has sides 3, 7, 3, and 7 cm. Its perimeter is 20 cm and its area is 21 square cm.

For Part 2, accept explanations that add all four labeled sides and give the correct total. For the challenge, check that both perimeters are 20 cm and the areas differ.