Volume Match

Compare each figure with a 2 cm by 3 cm by 4 cm prism.

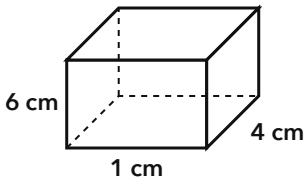
5.GM.2 "Determine volume using the object's dimensions. Compare and analyze rectangular prisms with equivalent volume to recognize their different dimensions..."

NAME _____ DATE _____

SAME VOLUME

The reference prism has a volume of 2 × 3 × 4 = 24 cubic centimeters. A prism belongs here if its length × width × height is also 24.

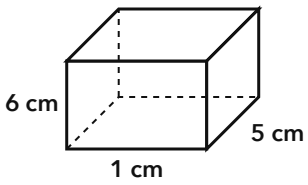
$1 \times 4 \times 6 = 24$ cubic centimeters.



DIFFERENT VOLUME

A prism belongs here if its length × width × height is not 24. Its volume differs from the reference prism's volume.

$1 \times 5 \times 6 = 30$ cubic centimeters.



1 SORT

8 items

For each figure, circle Same or Different; in Part 2, choose two figures and explain your choices using multiplication.

1.

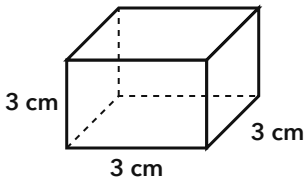


Figure 1

SAME DIFFERENT

2.

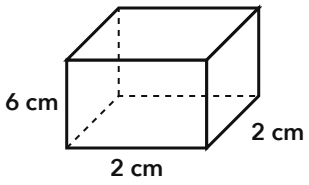


Figure 2

SAME DIFFERENT

3.

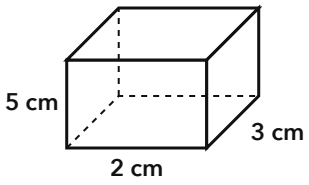


Figure 3

SAME **DIFFERENT**

4.

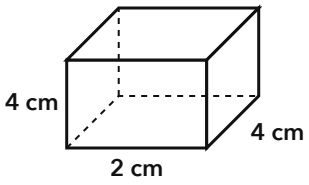


Figure 4

SAME **DIFFERENT**

5.

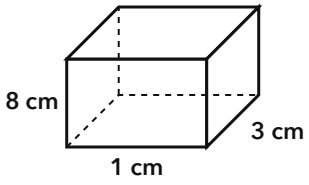


Figure 5

SAME **DIFFERENT**

6.

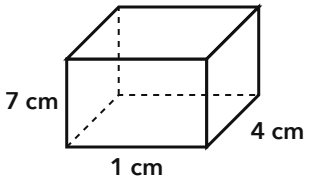


Figure 6

SAME **DIFFERENT**

7.

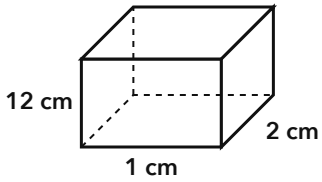


Figure 7

SAME **DIFFERENT**

8.

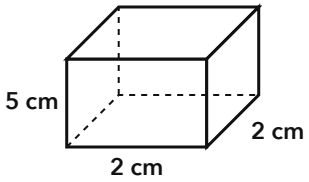


Figure 8

SAME **DIFFERENT**

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 dimensions for one new prism in each category, and show the volume of each.

SAME

DIFFERENT

CHALLENGE

Find two prisms with different dimensions that both have a volume of 36 cubic centimeters, and show both products.

ANSWER KEY # Volume Match

GRADE 5 · 5.GM.2

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (prism)	**DIFFERENT**	3 × 3 × 3 = 27 cubic centimeters, not 24.
2	Figure 2 (prism)	**SAME**	2 × 2 × 6 = 24 cubic centimeters.
3	Figure 3 (prism)	**DIFFERENT**	2 × 3 × 5 = 30 cubic centimeters, not 24.
4	Figure 4 (prism)	**DIFFERENT**	2 × 4 × 4 = 32 cubic centimeters, not 24.
5	Figure 5 (prism)	**SAME**	1 × 3 × 8 = 24 cubic centimeters.
6	Figure 6 (prism)	**DIFFERENT**	1 × 4 × 7 = 28 cubic centimeters, not 24.
7	Figure 7 (prism)	**SAME**	1 × 2 × 12 = 24 cubic centimeters.
8	Figure 8 (prism)	**DIFFERENT**	2 × 2 × 5 = 20 cubic centimeters, not 24.

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)

- **SAME**: 1 cm by 1 cm by 24 cm; 1 × 1 × 24 = 24 cubic centimeters.
- **DIFFERENT**: 3 cm by 3 cm by 4 cm; 3 × 3 × 4 = 36 cubic centimeters.

Challenge: 1 cm by 4 cm by 9 cm: 1 × 4 × 9 = 36 cubic centimeters. 2 cm by 3 cm by 6 cm: 2 × 3 × 6 = 36 cubic centimeters.

For Part 2, accept any two figures explained with correct products and comparisons to 24 cubic centimeters. For Part 3, dimensions must be in centimeters and products must match the chosen categories.