Cube Count Match

Sort prisms by volume, then prove your choices.

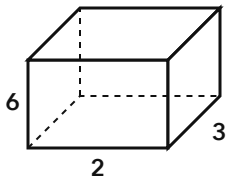
5.GM.2.1 "Determine the volume of rectangular prisms by the number of unit cubes (n) used to construct the shape and by the product of the dimensions of the prism a · b · c = n. Understand rectangular prisms of different dimensions (p, q…"

NAME _____ DATE _____

SAME VOLUME

Multiply the three edge labels to find the number of unit cubes. A 3 by 3 by 4 prism holds 36 unit cubes, so a prism in this category also holds 36.

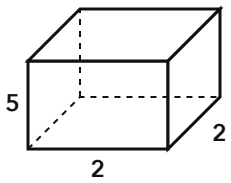
$2 \times 3 \times 6 = 36$ unit cubes.



DIFFERENT VOLUME

A prism in this category holds a number of unit cubes other than 36.

$2 \times 2 \times 5 = 20$ unit cubes.



1 SORT

8 items

For Part 1, circle SAME or DIFFERENT for each figure; for Part 2, pick two figures and explain each choice with a multiplication equation.

1.

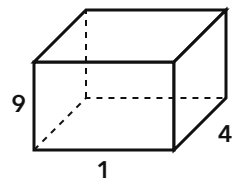


Figure 1

SAME DIFFERENT

2.

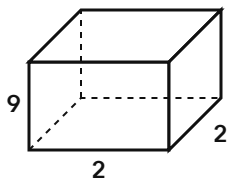


Figure 2

SAME DIFFERENT

3.

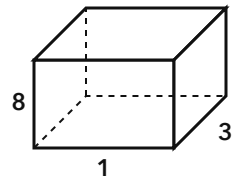


Figure 3

SAME **DIFFERENT**

4.

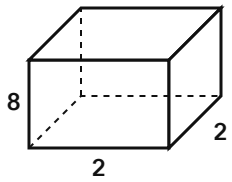


Figure 4

SAME **DIFFERENT**

5.

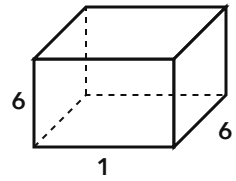


Figure 5

SAME **DIFFERENT**

6.

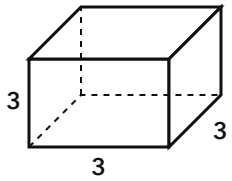


Figure 6

SAME **DIFFERENT**

7.

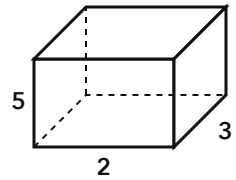


Figure 7

SAME **DIFFERENT**

8.

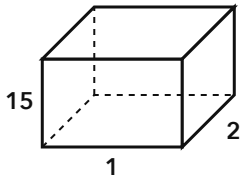


Figure 8

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 three edge lengths for one new SAME prism and one new DIFFERENT prism, then find each volume in unit cubes.

SAME _____

DIFFERENT _____

CHALLENGE

Choose one figure marked DIFFERENT. Give a new set of three edge lengths that makes the same volume, but is not just the old lengths in a new order. Show both products.

ANSWER KEY

Cube Count Match

GRADE 5 · 5.GM.2.1

PART 1 · SORT

#	ITEM	CATEGORY	WHY
1	Figure 1 (prism)	**SAME**	1 × 4 × 9 = 36 unit cubes.
2	Figure 2 (prism)	**SAME**	2 × 2 × 9 = 36 unit cubes.
3	Figure 3 (prism)	**DIFFERENT**	1 × 3 × 8 = 24 unit cubes, not 36.
4	Figure 4 (prism)	**DIFFERENT**	2 × 2 × 8 = 32 unit cubes, not 36.
5	Figure 5 (prism)	**SAME**	1 × 6 × 6 = 36 unit cubes.
6	Figure 6 (prism)	**DIFFERENT**	3 × 3 × 3 = 27 unit cubes, not 36.
7	Figure 7 (prism)	**DIFFERENT**	2 × 3 × 5 = 30 unit cubes, not 36.
8	Figure 8 (prism)	**DIFFERENT**	1 × 2 × 15 = 30 unit cubes, not 36.

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 × 3 × 12 = 36 unit cubes.
- **DIFFERENT**: 2 × 4 × 5 = 40 unit cubes.

Challenge: Figure 3: 1 × 3 × 8 = 24 unit cubes. New lengths: 2 × 3 × 4 = 24 unit cubes.

For Part 2, accept any two figures with correct products and explanations. Figures 7 and 8 both have 30 unit cubes despite having different edge lengths.