Another Look!

The shape of a swimming pool is a rectangular prism. The pool is 9 meters long and 4 meters wide. It holds 108 cubic meters of water. How deep is the pool if the entire pool is the same depth?
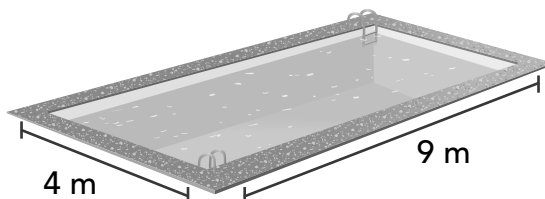
Use the volume formula.

$V = \ell \times w \times h$
$108 = 4 \times 9 \times h$
$108 = 36 \times h$

Divide to find the answer.
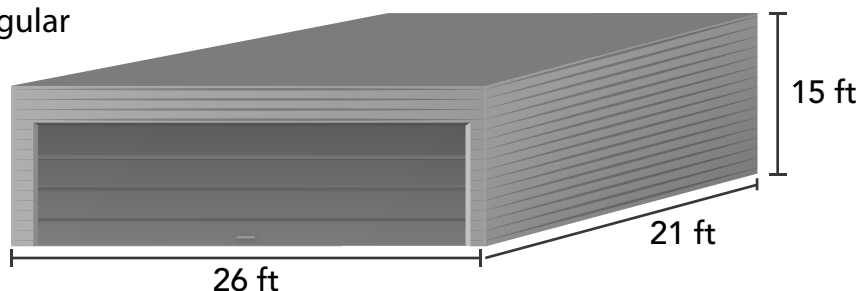
$108 \div 36 = 3$

The swimming pool is 3 meters deep.

9 m

4 m

Think about the operation that can help you find a missing factor.

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1. A garage is shaped like a rectangular prism. What is the volume of the garage? Show your work.
8,190 cubic feet;
$V = 26 \times 21 \times 15$
$= 8,190$

15 ft

21 ft

26 ft

2. Nabeel's sand box is 7 feet wide, 5 feet long and 2 feet deep. What is the volume of the sand box?
70 cubic feet

3. A box of oat cereal measures 24 centimeters long by 5 centimeters wide by 25 centimeters high. A box of rice cereal measures 26 centimeters long by 4 centimeters wide by 28 centimeters high. Which box has the greater volume? How much greater?
The box of oat cereal; 88 cubic centimeters greater

4. Marin has a jewelry box with a volume of 440 cubic inches. The box is 5 inches high and 11 inches long. What is the width of the box?
8 inches

5. Walter is building a storage shed shaped like a rectangular prism. It will be 7 feet high and 8 feet long. How wide should it be if Walter wants 280 cubic feet of storage space? Explain how you found your answer.

5 feet; Sample answer: 280 = 56 × w. 280 ÷ 56 = 5, so the width is 5 feet.

6. Generalize Use multiplication to describe the relationship between the dividend, the divisor, and the quotient. Then use that relationship to show that $\frac{1}{8} \div 6 = \frac{1}{48}$.

Sample answer: The quotient times the divisor equals the dividend.
$$\frac{1}{48} \times 6 = \frac{6}{48} = \frac{1}{8}$$

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7. Higher Order Thinking Otis is packing two gift boxes in a shipping carton. The rest of the space in the carton will be filled with packing pellets. What is the volume of the space that needs to be filled with packing pellets? Explain how you found your answer.
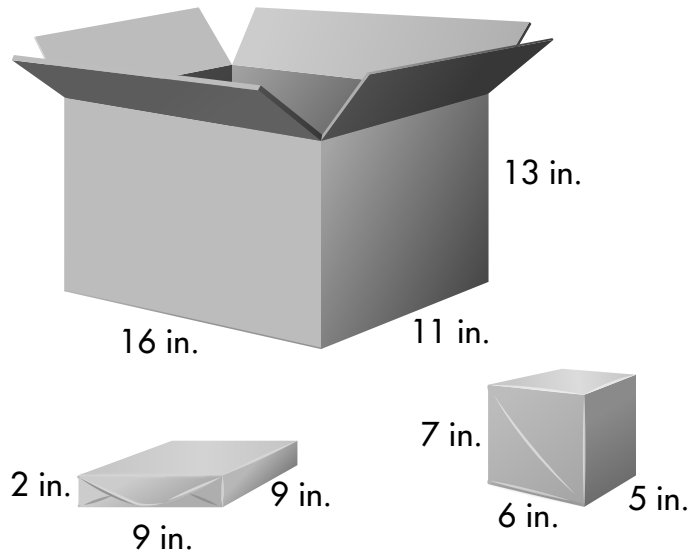
1,916 in^3; Sample answer: The total volume of the gift boxes is (6 × 5 × 7) + (9 × 9 × 2) = 210 + 162 = 372 in^3. The volume of the shipping carton is 16 × 11 × 13 = 2,288 in^3. So, the amount of space to be filled with pellets is 2,288 − 372 = 1,916 in^3.

13 in.

11 in.

16 in.

7 in.

2 in.

9 in.

9 in.

6 in.

5 in.

☑ **Assessment Practice**

8. Marie built a sand castle that is made of two rectangular prisms. She used one bag of sand. If there are 2,000 cubic inches of sand in a bag of sand, how much sand was left after Marie built her sand castle?

8 in.   9 in.

5 in.

6 in.

15 in.   15 in.

Ⓐ 248 in^3

Ⓑ 290 in^3

Ⓒ 578 in^3

Ⓓ none