Enrich

Using Formulas

A formula is an equation that can be used to solve certain kinds of problems. Formulas often have algebraic expressions. Below are some common formulas used to solve geometry problems. The variables in geometric formulas represent dimensions of the geometric figures.

Area *(A)*

of a rectangle: $A = \ell \cdot w$

of a square: $A = s^2$

of a triangle: $A = \frac{1}{2}bh$

Volume *(V)*

of a rectangular prism: $V = \ell \cdot w \cdot h$

Perimeter *(P)*

of a square: $P = 4s$

of a rectangle: $P = 2(w + \ell)$

b = base h = height ℓ = length s = side w = width

Write the formula used to solve each problem.

1. Nate wants to put a fence around his garden to keep rabbits out. Nate's garden is square in shape. Which formula can Nate use to find how much fence he needs to buy?

2. Dayami's mother will replace the carpeting in their living room. The living room is rectangular in shape. Which formula can Dayami's mother use to determine how much carpeting she will need to order for her living room?

3. Victor is cleaning his aquarium, which is shaped like a rectangular prism. After he empties the aquarium and cleans the sides, he will refill the aquarium. Which formula can Victor use to determine how much water he will put back in the aquarium?

4. Guliana is making a triangular flag for a school project. Which formula can she use to determine how much material she needs to buy to make the flag?

Solve each problem.

5. A tablecloth is 8 feet long and 5 feet wide. What is the area of the tablecloth?

6. Victoria wants to frame a square picture that has sides of 6 inches. How many inches of wood will she need to make the frame?

7. How many cubic centimeters of packing peanuts will fit in a cardboard box that is 9 centimeters long, 8 centimeters wide, and 3 centimeters high?

8. Joaquin paints a mural on one wall of the school's gymnasium. Part of the mural is a triangle with a base of 20 feet and a height of 8 feet. What is the area of the triangle?