

# Math Challenge #14



First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_ Grade: \_\_\_\_\_  
 Teacher: \_\_\_\_\_ Parent's email: \_\_\_\_\_

## Lengths and Areas

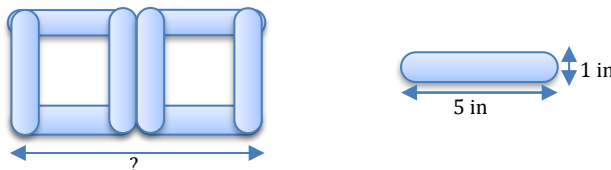
In this Math Challenge, students solve math puzzles that can strengthen their logical and creative thinking. Topics covered in this math challenge include Lengths and Areas.

**Kinder & First Grade: solve at least 3 problems.**  
**Second & Third Grade: solve at least 6 problems.**  
**Fourth Grade and above: solve at least 12 problems.**

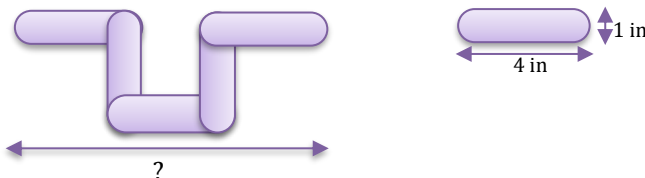
### Problems

### Answer

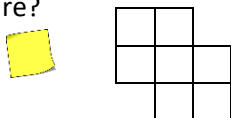
1. Eliza made the figure below using a number of popsicle sticks. Each of the popsicle sticks is **5 inches long, and 1 inch wide**. What is the length of the figure?



2. Five popsicle sticks that are **4 inches long** are connected as shown in the picture below. What is the length of the figure?



3. Each sticky note will cover 1 square of the figure. How many sticky notes will cover the whole figure?

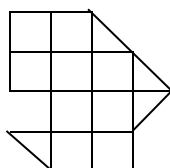
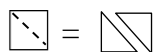


4. Tom has two sticks that are 6 inches long and 10 inches long respectively. He tied the two sticks together to make one long stick as follows:

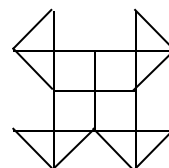


How long is the new stick?

5. If two triangles make up one square as shown, find how many squares make up each of these shapes?

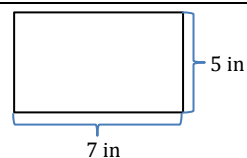


SHAPE A

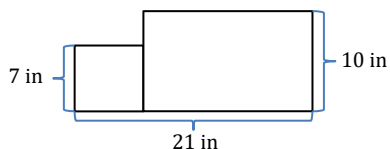


SHAPE B

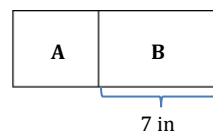
6. To find the area of a rectangle, multiply the length times the width. For example, to find the area of a rectangle with length of 7 feet and width of 5 feet, you can multiply 7 feet x 5 feet = 35 square feet. What is the area of this rectangle if we double its length and its width?



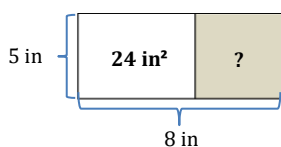
7. Find the area of the figure below which is made up of a square and a rectangle.



8. The figure on the right is made up of a square A and a rectangle B. The distance around the square A is 20 inches. Find the area of the whole figure.

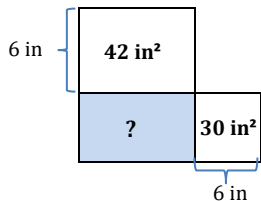


9. Study the figure below:



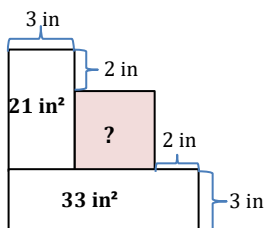
What is the area of the shaded figure?

10. Study the figure below:



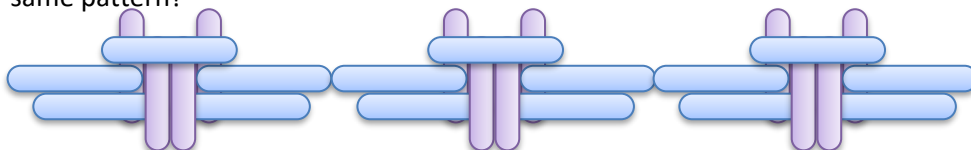
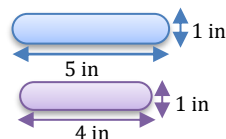
What is the area of the shaded figure?

11. Study the figure below:

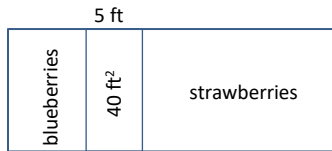


What is the area of the shaded figure?

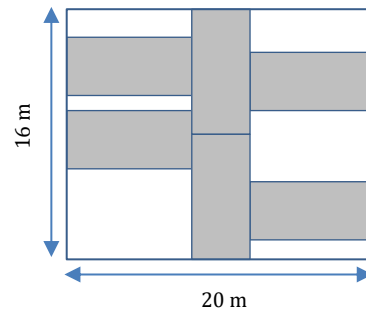
12. Tom has 2 different lengths of popsicle sticks. The longer ones are 5 inches long and the shorter ones are 4 inches long. He has 50 long ones and 30 short ones. He made a figure with this pattern. What is the longest possible figure he can make if he follows the same pattern?



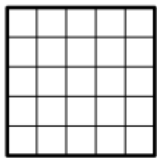
13. Mrs. Rosenblum grows blueberries and strawberries. This season, she has changed the rectangular blueberry bed to a square by lengthening one of its sides by 5 feet. Because of this change, the area of the strawberry bed was reduced by 40 square feet. What was the area of the blueberry bed before the change?



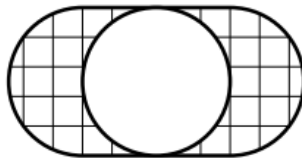
14. The sides of the large rectangle are 20 m and 16 m. All six shaded rectangles are the same shape and have the same area. What is the total area of all the shaded regions, in square meters?



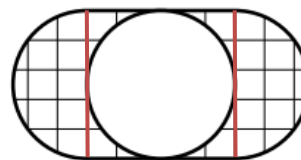
15. Shiven is coloring two shapes (shape A and shape B). He uses 1 teaspoon of acrylic paint to cover 1 single square. On which shape will he use more paint? Shape A or shape B?



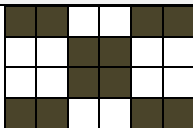
SHAPE A



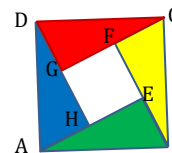
SHAPE B



16. Allison has a chocolate bar made out of 12 squares of milk chocolate and 12 squares of white chocolate. She wants to get one piece, 2 by 2 square, in such a way to get the same volume of milk and white chocolate. In how many ways she can do it?



17. In a figure on the right, there are 4 identical right-angled triangles. They are arranged to form the shapes ABCD. In triangle ABE,  $AB=17$  in and  $AE-BE=7$  in. Find the area of ABCD. Find the area of EFGH.



18. Study the figure on the left. If the side of 1 square is  $\frac{1}{2}$  inch what is the area of this shape?

