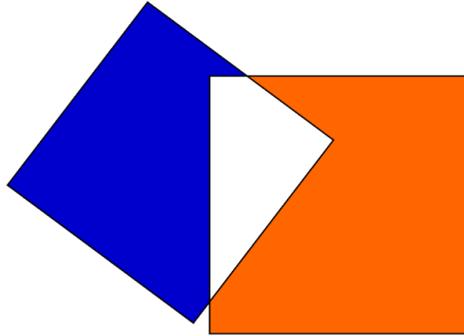


Israeli Mathematical Olympiad for 3-4 grades

First stage

1. Two squares are given as described in the drawing. The side length of the larger square is 9, and the side length of the smaller square is 8. What is the difference between the orange area and the blue area?



2. In the following exercises different characters replace different digits, and same characters replace the same digits.

$$5 = \psi + n + n$$

$$9 = \psi + n + \psi$$

Calculate the value of the expression:

$$n + \psi$$

3. Yael writes ten-digit numbers that are written with each digit exactly once. In addition, the differences between each two adjacent digits in Yael's numbers are at least 2. What is the smallest number that Yael can write?

Note: A number cannot begin with the digit 0.

4. Four distinct positive integer numbers are given. The sum of the numbers is equal to 18. In addition, their product is odd. Calculate their product.

5. Benjamin, Haim, Yehuda and Max live on Tsionut Street. Benjamin left his home, walked 169 meters and arrived at Haim's home. After a short break, he walked 196 meters and arrived at Yehuda's home. Afterwards he walked 171 meters and arrived at Max's home, and finally, after walking 144 additional meters, he arrived at his own home.

What is the distance Benjamin's home and Yehuda's home?

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First stage

6. Aviv has several dice (cubes), and each die has two opposing red sides and rest are blue. Aviv glued them together to form a $2 \times 2 \times 2$ cube. Then came his friend Kfir and calculated the total red area that is on the surface of the large cube. What is the largest result that Kfir could have gotten?

7. Miri writes down all the possible numbers whose digits are 1, 2, 3, 4, 5 (she doesn't necessarily use all the digits) and whose digits appear in strictly ascending order. How many numbers will she write?

Clarification: For example, Miri will write the numbers 5 or 1345, but not the numbers 153, 157 or 1223.

Good Luck!