

Israeli Mathematical Olympiad for 5-6 grades

First stage

1. 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.

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

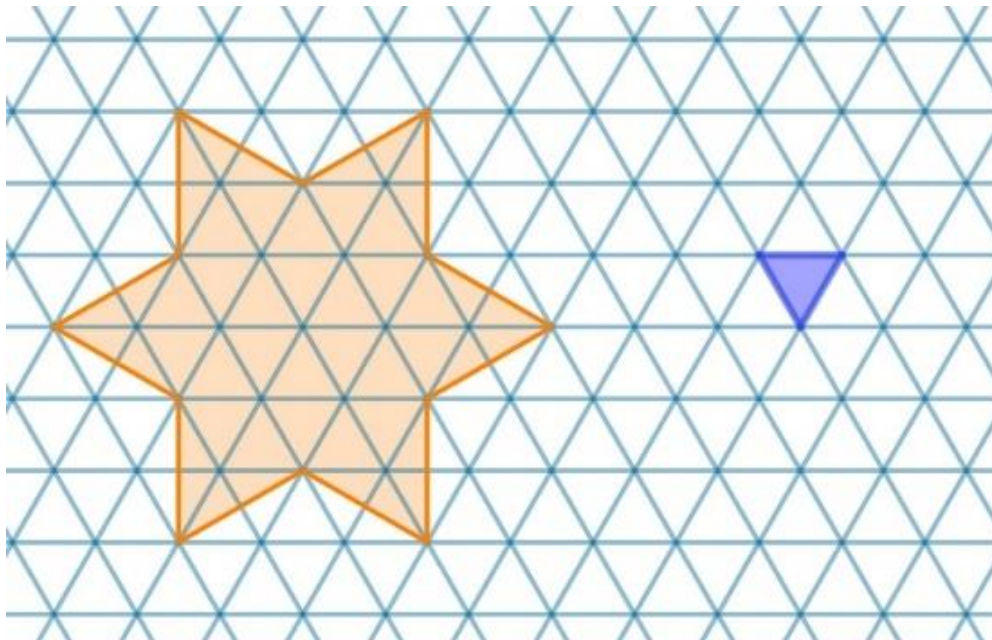
$$19 = \upsilon + \mathfrak{m} + \mathfrak{n} + \psi$$

$$10 = \mathfrak{p} + \mathfrak{n} + \psi + \mathfrak{m}$$

Calculate the value of the expression:

$$\mathfrak{n} + \mathfrak{m} + \psi$$

3. The area of the blue triangle is equal to 1. Calculate the area of the orange Star of David.

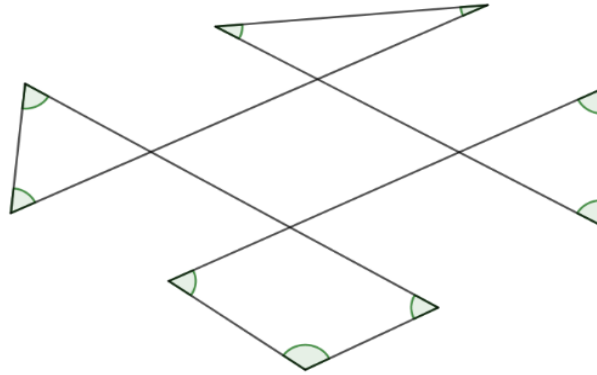


4. Five distinct positive integer numbers are given. The sum of the numbers is equal to 27. In addition, their product is odd. Calculate their product.

Israeli Mathematical Olympiad for 5-6 grades

First stage

5. Calculate the sum of the marked angles.



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 $3 \times 3 \times 3$ 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 1,2,3,4,5,6 (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 6 or 1346, but not the numbers 163, 157 or 1223.

Good Luck!