CYPRUS MATHEMATICAL SOCIETY
REGIONAL COMPETITION
NOVEMBER 2026

GYMNASIUM B'

Date: 07/11/2026 *Time: 10:00-12:00*

INSTRUCTIONS

1. Solve all the problems, fully justifying your answers.
2. Each problem is worth 10 points.
3. Write with blue or black ink (shapes can be drawn with pencil).
4. The use of corrective liquid (Tipp-Ex) is not allowed.
5. The use of a calculator is not allowed.

PROBLEMS

Problem 1

Calculate the values of the expressions:

$$A = \sqrt{7^{40}} \cdot \left(\sqrt[3]{49}\right)^{-27} \quad \text{and} \quad B = \frac{18^{100}}{6 \cdot 3^{200} \cdot 2^{100} + 3^{200} \cdot 2^{101}}.$$

Problem 2

An electrical appliance store stocks two types of televisions: OLED and LED. On January 1st, the total number of televisions in the warehouse was 1200. Of these, 40% were OLED, and the remainder were LED. During January, the percentage of LED televisions sold was double the percentage of OLED televisions sold. Given that, after these sales, the number of remaining OLED televisions was exactly equal to the number of remaining LED televisions, calculate the percentage of total television sales (OLED and LED) for the store during that month.

Problem 3

Write down all the prime numbers that are greater than 250 and less than 300.

Problem 4

In the adjacent figure, the line $A\Gamma$ intersects the lines BE and $B\Delta$ at points K and N respectively. The bisectors of angles A and Δ intersect at the point I. If $BK = BN$, $\measuredangle AI\Delta = 145^\circ$ and $2\varepsilon - \gamma = 20^\circ$, calculate the angles γ and $\measuredangle IN\Gamma$.

