Students of 7th class of primary school solve questions 1 to 3; students of 2nd and 3rd class of middle school from 1 to 5

B1. Point E is an interior point of a square $ABCD$. Show that if the area of triangle AEB is smaller than the area of triangle BEC then the area of triangle CED is bigger than the area of triangle DEA.

B2. Is there a three digit number where that number is equal to the double product of its digits?

B3. Piotr collected $3,1$ kg of mushrooms in a forest. The four heaviest ones weighed together 1 kg. The five lightest ones also weighed 1 kg in total. How many mushrooms did Piotr collect?

B4. If you know that $a+b+c = 2018$ and $\frac{1}{a+b} + \frac{1}{b+c} + \frac{1}{c+a} = \frac{1}{2018}$, calculate the value of the following expression

$$\frac{c}{a+b} + \frac{a}{b+c} + \frac{b}{c+a}.$$

B5. In an isosceles triangle ABC, the angle $|\sphericalangle BAC|$ is $100°$. The bisector of the angle ACB cuts the line segment AB at point D. Show that $|CD| + |DA| = |BC|$.

Solutions of the above tasks should be sent by a registered mail to the address:

Wielkopolska Liga Matematyczna Juniorów
(dr Edyta Juskowiak)
Collegium Mathematicum
ul. Umultowska 87
61-614 Poznań

by

28th of February 2018

(date as postmarked).

All solutions must be written down on separate one sided A4 sheets. The solutions may be submitted in Polish or English language. In the left, top corner of each sheet, the participant writes his/her first and second name and the school and class name. It would be good to add an e-mail address. Before submitting the solutions, please read terms and conditions of the WLMJ. With solutions please send your parents/guardian consent. It may be downloaded from the website. Before submitting the solution, please fill the form on our website.

All information (in polish language) about Greaterpoland's Mathematical League for Juniors (WLMJ), including tasks and current ranking of participants may be found on:

http://wlmj.wmi.amu.edu.pl