

TOPIC OF A COMPETITION PROMOTING STUDENT ENGAGEMENT IN SCIENTIFIC ACTIVITIES

Topic: Philosophical Questions in the Foundations of Mathematics
Goal: To analyze epistemological and ontological questions of mathematics
Short description (max. 2000 characters): <p>The work consists in collecting, reviewing and summarizing literature on understanding of I. Kant's synthetic a priori judgments as well as on N. Bourbaki's contributions to understanding mathematics and its limitations. It is related to the question of the role of intuition and construction vs formalism: Kant emphasizes construction in intuition (space, time), while Bourbaki emphasizes formal structures, axiomatic presentation, abstraction. One of the questions is how Kantian epistemology interacts with the practice of mathematics. Another – how deep is structuralism engrained in standard approaches. Kant always tied mathematics to its role in structuring our knowledge of nature. Modern foundational frameworks (set theory, category theory, structuralism) sometimes are developed entirely within “pure mathematics” without reference to empirical science. How do these pure foundations relate or remain anchored to the empirical world?</p>
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