Conclusion. The research revealed that mathematics is very closely connected with other sciences, especially with economics. Obviously, the derivative is one of the most important tool of economic analysis, which allows one to deepen the mathematical meaning of economic concepts and express economic laws using mathematical formulas. Also, the use of the derivative is often used in economic problems and theories . The economic meaning of the derivative is that it acts as the rate of change of some economic process over time or in relation to another factor under research. The use of derivative or differential calculus solves many economic problems, such as, for example, the problem elasticity of demand. The most relevant use of the derivative is in marginal analysis, that is, in the study of marginal values (marginal costs, marginal revenue, marginal productivity of labor or other factors of production, etc.).

1. Busniuk, N.N. Mathematical modeling / N.N. Busniuk, A.A. Chernyak. – Minsk: Belarus, 2014. – 214 p.

ON PROPERTY OF GENERATED σ-LOCAL FORMATIONS

Vladimir Stepanov
VSU named after P.M. Masherov, Vitebsk, Belarus

All groups considered are finite. Let σ be a partition of the set of all primes $\mathbb{P}$, that is $\sigma = \{\sigma_i \mid i \in I\}$, where $\mathbb{P} = \bigcup_{i \in I} \sigma_i$ and $\sigma_i \cap \sigma_j = \emptyset$ for all $i \neq j$. If n is an integer, the symbol $\pi(n)$ denotes the set of all primes dividing n; $\sigma(n)$ denotes the set $\{\sigma_i \mid \sigma_i \cap \pi(n) \neq \emptyset\}$; $\sigma(G) = \sigma(|G|)$; $\sigma(\mathfrak{F}) = \bigcup_{G \in \mathfrak{F}} \sigma(G)$. For any collection of groups X symbol (X) denotes the class of groups generated by the collection of groups X. The symbols $F_{\sigma_i}(G)$ and $O_{\sigma_i}(G)$ denote the product of all normal σ_i'-closed subgroups of G (see [3]) and the product of all soluble normal σ_i-subgroups of G. A group class closed under taking homomorphic images is called a semiformation. (see [2]).

A formation is a class of groups closed under taking homomorphic images and finite subdirect products (see [1]).

Any function f function of the form

$f : \sigma \longrightarrow$ {formations of groups},

is called a formation σ-function. Following [3, 4], we put

$LF_\sigma(f) = (G \mid G = 1$ or $G \neq 1$ and $G / F_{\sigma_i}(G) \in f(\sigma_i)$ for all $\sigma_i \in \sigma(G))$.

If for some formation σ-function f we have $\mathfrak{F} = LF_\sigma(f)$, then we say that class $\mathfrak{F}$ is σ-local and f is a σ-local definition of $\mathfrak{F}$ (see [3, 4]). The symbol $l^\sigma \mathrm{form}(\mathfrak{X})$ denotes the intersection of all σ-local formations containing a collection $\mathfrak{X}$ of groups.

The main result is the following

Theorem. Let M be a semiformation and $A \in l^{\sigma}$formM. If $O_{\sigma_i}(A) = 1$, and $\sigma_i \in \sigma$, then $A \in l^{\sigma}$formM$_1$, where M$_1$ = $\{G / O_{\sigma_i}(G) \mid G \in$ M$\}$.

1. Shemetkov, L.A. Formations of finite groups / L.A. Shemetkov – Moscow: Nauka, 1978. – 272 p.
2. Skiba, A. N. Algebra of formations / A. N. Skiba – Minsk: Belaruskaya Navuka, 1997. – 240 p.
3. Chi, Z. On $\sum_t^{\sigma}$ –closed classes of finite groups / Z. Chi, A.N. Skiba // Ukr. Math. J. – 2019. – Vol. 70, No.12. – P. 1966–1977; translation from Ukr. Mat. Zh. – 2018. – Vol. 70, No.12. – P. 1707–1716.
4. Chi, Z. On *n*-multiply σ-local formations of finite groups / Z. Chi, V.G. Safonov, A.N. Skiba // Comm. Algebra. – 2019. – Vol. 47, № 3. – P. 957–968.

ON MODULARITY OF THE LATTICE OF σ-LOCAL FITTING CLASSES

Taisa Zhuk

VSU named after P.M. Masherov, Vitebsk, Belarus

All groups considered are finite. In definitions and notations we follow N.N. Vorob'ev "Algebra of Classes of Finite Groups" and K. Doerk "Finite Soluble Groups" [1, 2].

The problem of describing the properties of the lattice of classes of groups and subgroup systems is the actual problem of the group theory. In this field of research, we know the result of A.N. Skiba [3] on the modularity of the lattice of formations of groups. However, the question of the modularity of the lattice of Fitting classes and lattice of Fitting sets of group remains open to date (see [4, Problem 14.47]).

The purpose of this paper is to prove the modularity of the lattice of σ-local Fitting classes.

Material and methods. The lattice is a partially ordered set, in which each two-element subset has both an exact top and an exact bottom edge. A lattice L is called modular if for any $x, y, z \in L$ such as $x \leq y$ the following equality holds $x \vee (y \wedge z) = y \wedge (x \vee z)$, called a modular law.

The non-empty class of groups $\mathfrak{F}$ is called the Fitting class, if and only if the following conditions are fulfilled:

1) if $G \in \mathfrak{F}$ и $N \trianglelefteq G$, then $N \in \mathfrak{F}$;
2) if $M, N \in \mathfrak{F}$, $M \trianglelefteq G, N \trianglelefteq G$ и $G = MN$, then $G \in \mathfrak{F}$.

The symbol $G^{\mathfrak{F}}$ denotes the intersection of all normal subgroups N such that $G/N \in \mathfrak{F}$.