WPS allows the client to connect to the access point using the 8-character code consisting of digits (PIN). However, due to an error in the standard, only 4 of them need to be guessed. Thus, just 10,000 retry attempts, and regardless of the complexity of the password for accessing the wireless network, you automatically get this access, and with it, in addition - and this same password as it is.

Given that this interaction occurs before any security checks, you can send 10–50 requests to the WPS throughput per second, and after 3–15 hours (sometimes more, sometimes less) you will receive the keys. When this vulnerability was revealed, manufacturers began to introduce a limit on the number of login attempts (the rate limit), after exceeding which the access point automatically for some time disables the WPS - but so far such devices are not more than half of those already released without this protection. Even more - a temporary shutdown cardinally does not change anything, since at one login attempt per minute we will need only 10000/60/24 = 6.94 days. And the PIN is usually found before the whole cycle goes through. I want to draw your attention once again that with WPS enabled, your password will be inevitably disclosed, regardless of its complexity. Therefore, if you generally need WPS - turn it on only when connecting to the network, and at other times keep this backdoor turned off.

Conclusion. The research revealed vulnerabilities in all security protocols. This shows that using wifi networks is not safe. Wifi is not suitable for transferring secret information. In order to maximize your safety, follow these simple recommendations: do not connect to open networks, before connecting, check the protocol type, use the latest version of the software.

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ON THE PROPERTIES OF FITTING CLASSES, GENERATED π-CORADICALS

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Only finite groups are considered. In the definitions and notation we follow [1].

A class $\mathfrak{F}$ is a *Fitting class* if and only if the following two conditions are satisfied:

1. If $G \in \mathfrak{F}$ and $N \trianglelefteq G$, then $N \in \mathfrak{F}$;
2. If N_1 and $N_2 \trianglelefteq G$, N_1 and $N_2 \in \mathfrak{F}$, then $N_1 N_2 \in \mathfrak{F}$.

Let $\mathbb{P}$ be the set of all prime numbers, $\pi \subseteq \mathbb{P}$ and $\pi' = \mathbb{P} \backslash \pi$.

A formation is a (possibly empty) class $\mathfrak{F}$ of groups with the following two properties:

1. If $G \in \mathfrak{F}$ and $N \trianglelefteq G$, then $G/N \in \mathfrak{F}$;
2. If $N_1, N_2 \trianglelefteq G$ with $N_1 \cap N_2 = 1$ and $G/N_1 \in \mathfrak{F}$ and $G/N_2 \in \mathfrak{F}$, then $G \in \mathfrak{F}$.

It follows from the definition of a formation that if $\mathfrak{F}$ is a non-empty formation, then for any group G there exists the smallest normal subgroup whose factor group belongs to $\mathfrak{F}$. This subgroup is $\mathfrak{F}$-coradical of G, written $G^{\mathfrak{F}}$. For example, $\mathfrak{E}^{\pi}$-coradical of G is a subgroup $O^{\pi}(G)$, where π is a set of primes.

For each set of primes π define set $O^{\pi}(\mathfrak{F}) = \{O^{\pi}(G) : G \in \mathfrak{F}\}$. Denote by f_{π} the map, which sends Fitting class $\mathfrak{F}$ to Fitting class, generated by set $O^{\pi}(\mathfrak{F})$, written $Fit\ O^{\pi}(\mathfrak{F})$ or $\mathfrak{F}f_{\pi}$.

The problem arises of studying the properties of a class $\mathfrak{F}f_{\pi}$. The main goal of this work is to describe the properties of the Fitting classes generated by π-coradicals of groups. The main results of the paper are presented in two theorems.

Theorem 1. *Let $\mathfrak{F}$ and $\mathfrak{H}$ be Fitting class and π a set of primes. Then*

1. *$\mathfrak{F} \subseteq \mathfrak{H}$ implies, that $\mathfrak{F}f_{\pi} \subseteq \mathfrak{H}f_{\pi}$.*
2. *$\mathfrak{F}f_{\pi} \subseteq \mathfrak{H}f_{\pi}$ if and only if $O^{\pi}(\mathfrak{F}) \subseteq O^{\pi}(\mathfrak{H})$.*
3. *$(\mathfrak{F}f_{\pi})f_{\pi} = \mathfrak{F}f_{\pi}$.*
4. *$\mathfrak{F}f_{\pi} = \mathfrak{H}f_{\pi}$ if and only if $\mathfrak{F} \subseteq \mathfrak{H}\mathfrak{E}_{\pi}$ u $\mathfrak{H} \subseteq \mathfrak{F}\mathfrak{E}_{\pi}$.*

We use the Lockett operators [2] « *» and « $_*$» to describe the properties of the class $\mathfrak{F}f_{\pi}$, , which compare each non-empty Fitting class to the smallest Fitting class $\mathfrak{F}^*$, which contains $\mathfrak{F}$, so, that $(G \times H)_{\mathfrak{F}^*} = G_{\mathfrak{F}^*} \times H_{\mathfrak{F}^*}$ for all groups G and H, and Fitting class $\mathfrak{F}_*$ the smallest of the Fitting classes $\mathfrak{X}$ so, that $\mathfrak{X}^* = \mathfrak{F}^*$. Next theorem is proved

Theorem 2. $(\mathfrak{F}f_{\pi})^* = \mathfrak{F}^*$ *if and only if* $\mathfrak{F}f_{\pi} = \mathfrak{F} \cap \mathfrak{X}$.

We give the plan of the proof of the theorem. Note that the Lausch groups are used for the proof. We use the following lemma:

Lemma 3 [3]. *Let $\mathfrak{F}$ and $\mathfrak{X}$ be Fitting classes with $\mathfrak{F}_* \subseteq \mathfrak{X} \subseteq \mathfrak{F}^*$. There exists a (possibly infinite) abelian group A, and a map d which assings to each group G in $\mathfrak{F}$ a homomorphism d_G from G to A such that:*

1) if f is a normal embedding of a group N in some group G, and G lies in $\mathfrak{F}$, then for each element n of N $nd_N = (nf)d_G$;

2) if G is a group in $\mathfrak{F}$, then $G_{\mathfrak{X}} = ker\, d_G$;

3) $A = \{gd_G : g \in G \ \wedge G \in \mathfrak{X}\}$;

4) If $\mathfrak{Y}$ is a Fitting class with $\mathfrak{X} \subseteq \mathfrak{Y} \subseteq \mathfrak{F}$, and

$A(\mathfrak{Y}) = \{gd_G : g \in G \wedge G \in \mathfrak{Y}\}$

then $A(\mathfrak{Y})$ is a subgroup of A. The map $A \to A(\mathfrak{Y})$ defines a lattice isomorphism between the set of such Fitting classes $\mathfrak{Y}$ and the subgroup lattice of A.

Retaining the notation of the above lemma, we say that $\mathfrak{X}$ admits the Fitting pair $(A, d_{|\mathfrak{F}})$, and remark that $(A, d_{|\mathfrak{F}})$ is a unique up to isomorphism [3]. Suppose that $\mathfrak{Y}$ is a Fitting class such that $\mathfrak{F}_* \subseteq \mathfrak{Y} \subseteq \mathfrak{F}^*$, that $\mathfrak{F}_*$ admits the Fitting pair $(A, d_{|\mathfrak{F}})$ and that n denotes the natural homomorphism from A onto $A/A(\mathfrak{Y})$. It is clear that $\mathfrak{Y}$ admits the Fitting pair $\left(A/A(\mathfrak{Y}),\ p_{|\mathfrak{F}}\right)$, where p assigns to each G in $\mathfrak{F}$ the homomorphism $d_G n$ from G into $A/A(\mathfrak{Y})$.

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USING OF LEAST SQUARE METHOD IN FORECASTING

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In the natural sciences, engineering and economics, frequently we deal with formulas based on the processing of statistical data or the results of experiments. One of the common methods for constructing such formulas is the least square method.

The purpose of the study is to establish a link between two estimates x and y from the statistical data representing the results of some studies, and to write them in a table.

Material and methods. The article considers the least squares method, which is based on the theory of local extremum for functions of several variables [1]. LSM is a very common method of processing observations, experimental and personal data. Here is a method of applying for solving learning problems, for self-study [2].

Results and their discussion. Let's pretend that there is linear dependence between *x* and y, $y = ax + b$, where *a* and *b* are coefficients to be found, *y* is theoretical value of ordinate. To find *a*, *b* we should apply the