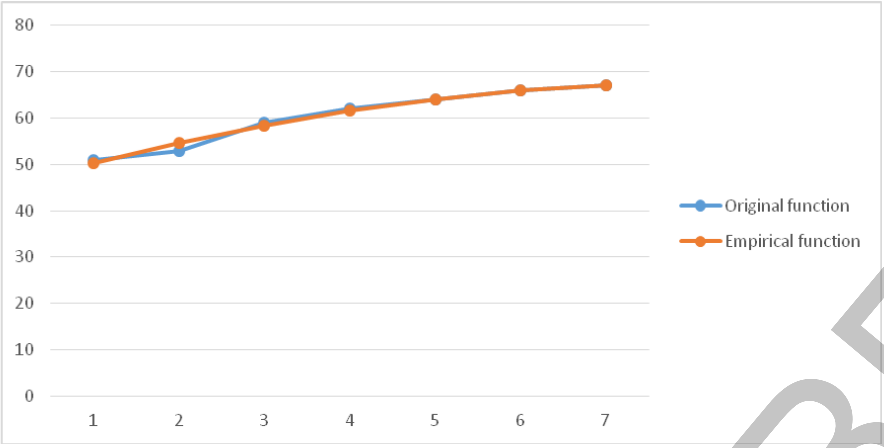

Picture 2 – Quadratic dependence

Conclusion. This article illustrates the application of LSM using Microsoft Excel programs. Finally, the revealed better dependence, allows making a forecast for the future, based on the data of statistical observations.

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ON THE COVER-AVOID PROPERTY OF INJECTORS OF FINITE GROUP

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Throughout this paper, all groups are finite. The notations and terminologies are standard as in [1, 2]. Let $\mathbb{P}$ be the set of all primes, $\pi \subseteq \mathbb{P}$, and $\pi' = \mathbb{P} \backslash \pi$. We denote by $\mathfrak{S}^{\pi}$ and $\mathfrak{E}_{\pi'}$ the classes of all π-soluble groups and all π'-groups respectively.

Recall that a class of groups $\mathfrak{F}$ is called a *Fitting class* if $\mathfrak{F}$ is closed under taking normal subgroups and products of normal $\mathfrak{F}$-subgroups. For any a nonempty class $\mathfrak{F}$ of groups, a subgroup V of G is said to be $\mathfrak{F}$-maximal if $V \in \mathfrak{F}$ and $U = V$ whenever $V \leq U \leq G$ and $U \in \mathfrak{F}$. A subgroup V of a group G is said to be an $\mathfrak{F}$-injector of G if $V \cap N$ is an $\mathfrak{F}$-maximal subgroup of N for every subnormal subgroup N of G. Recall that a nonempty set $\mathcal{F}$ of subgroups of a group G is called a *Fitting set of G* [3], if the following three conditions hold:

(1) If $T \trianglelefteq S \in \mathcal{F}$, then $T \in \mathcal{F}$;

(2) If $S \in \mathcal{F}$ and $T \in \mathcal{F}$, $S \trianglelefteq ST$ and $T \trianglelefteq ST$, then $ST \in \mathcal{F}$;

(3) If $S \in \mathsf{F}$ and $x \in G$, then $S^x \in \mathsf{F}$.

For a Fitting set F of G, the F-injector of G is similarly defined as the F-injector for Fitting class F (see [1, Definition VIII. (2.5)]).

Hartley [4] proved that for any soluble Fitting class F (that is, all groups in F are soluble), every F-injector V of a soluble group G either covers or avoids every chief factor H/K of G, that is, either $(V \cap H)K = H$ or $(V \cap H)K = K$.

In this connection, the problem arises in the class of non-soluble groups, describe the cover-avoid property of F-injectors of a group G on its chief factors.

For any set F of subgroups of G, we let $\sigma(\mathsf{F}) = \cup_{G \in \mathsf{F}} \sigma(G)$.

It is proved

Theorem. Let F be a Fitting set of a group G and $\varnothing \neq \pi \subseteq \mathbb{P}$. Then every F-injector of G either covers or avoids every chief factor of G in each of the following cases:

1) $G \subseteq \mathsf{F} \circ \mathsf{S}^{\pi}$, where $\pi = \sigma(\mathsf{F})$;
2) $G \subseteq \mathsf{S}^{\pi}$ and $\mathsf{F} \circ \mathsf{E}_{\pi'} = \mathsf{F}$.

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ON THE POSITIVE INTEGER SOLUTION OF NONLINEAR EQUATIONS $X^2+AX=B$ AND $X^3+AX^2+BX=C$ FOR THE SECOND ORDER MATRICES

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The problem of finding integer positive solution of nonlinear matrix equations of polynomial type for matrices of various orders plays an important role in solving a wide range of problems associated with the modeling of economic, social processes [1, c. 189].

The aim of this work is to find the simplest method for solving matrix equations for the second order matrices.

Material and methods. The matrix equation was recorded in the form of a system consisting of four equations, which were solved by analytical