

1016-11-8

Jaykov Foukzon* (aguidance@excite.com), Israel. *The solution of one very old problem in transcendental numbers theory.* Preliminary report.

The solution of one very old problem in transcendental numbers theory. In 1873 transcendentality of number e was proved by Ch.Hermite and in 1882 transcendentality of number π was proved by F.Lindeman. Up to the last time it was not known if: (a) numbers $e+\pi$ are irrational; (b) numbers $\exp(r)$, (here r is rational) are irrational. Definition. Arbitrary transcendental number z is called $\#$ -transcendental number over the field \mathbb{Q} , if the following condition is executed: (1) let's $g(z): \mathbb{R}$ to \mathbb{R} is analytical function which in some environs of point 0 expands into Taylor's row with coefficients from the field \mathbb{Q} , (2) $g(z)$ is not equal 0 for all z . Arbitrary transcendental number z called w -transcendental number over the field \mathbb{Q} , if z is not $\#$ -transcendental number over the field \mathbb{Q} . For example, number π by obvious way is w -transcendental number over the field \mathbb{Q} . Theorem.1. For any rational number r , number $\exp(r)$ is $\#$ -transcendental number over the field \mathbb{Q} . Corrolary. Number $e+\pi$ are irrational; (b) $(\pi)\exp(r)$ are irrational. (Received November 02, 2005)