

FORMALE SYSTEME

ÜBUNG 1: EINLEITUNG

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WER BIN ICH?

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- ▶ Fragen, Wünsche, Vorschläge, ...



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Keine Angst vor Mathe!

Euklid: Satz 4 in Buch II der "Elemente"

Wird eine Strecke in zwei geteilt, dann ist das Quadrat über der ganzen Strecke gleich den Quadraten über den Teilen und dem doppelten Rechteck, das die Teile ergeben, zusammen.

siehe <http://www.opera-platonis.de/euklid/Buch2.pdf>

al-Khwarizmi in Al-jabr wa'l muqabalah'

What must be the amount of a square, which, when twenty-one dirhems are added to it, becomes equal to the equivalent of ten roots of that square?

Solution: Halve the number of the roots; the moiety is five. Multiply this by itself; the product is twenty-five. Subtract from this the twenty-one which are connected with the square; the remainder is four. Extract its root; it is two. Subtract this from the moiety of the root, which is five; the remainder is three. This is the root of the square which you required, and the square is nine. Or you may add the root of the moiety of the roots; the sum is seven; this is the root of the square which you sought for, and the square itself is forty nine.

Definition (Kleene-Stern)

Für eine formale Sprache L definieren wir

$$L^* = \bigcup_{n \geq 0} L^n = \bigcup_{n=0}^{\infty} L^n$$

wobei $L^0 = \{\varepsilon\}$ und $L^{n+1} = L^n \cdot L$.

Beachte: $\{\varepsilon\}^* = \emptyset^* = \{\varepsilon\}$