

## 0.6. Numerical system.

For the expression of numbers Archimedes used the alphabetic system, in which all numbers below 1,000 could be represented by additive juxtaposition of letter symbols for the numbers 1, 2...9, 10, 20...90, 100, 200...900. The symbols in question were:

$\bar{\alpha} = 1$	$\bar{\iota} = 10$	$\bar{\varrho} = 100$
$\bar{\beta} = 2$	$\bar{\kappa} = 20$	$\bar{\sigma} = 200$
$\bar{\gamma} = 3$	$\bar{\lambda} = 30$	$\bar{\tau} = 300$
$\bar{\delta} = 4$	$\bar{\mu} = 40$	$\bar{\vartheta} = 400$
$\bar{\epsilon} = 5$	$\bar{\nu} = 50$	$\bar{\phi} = 500$
$\bar{\zeta} = 6$	$\bar{\xi} = 60$	$\bar{\chi} = 600$
$\bar{\eta} = 7$	$\bar{\omicron} = 70$	$\bar{\psi} = 700$
$\bar{\theta} = 8$	$\bar{\pi} = 80$	$\bar{\omega} = 800$
$\bar{\vartheta} = 9$	$\bar{\varphi} = 90$	$\bar{\lambda} = 900$

0.61. The numbers 1,000, 2,000...9,000 were expressed by the symbols for 1, 2...9, with a small dash in front and below the line, the number 10,000 by  $M$  (of  $\mu\acute{\upsilon}\rho\iota\omicron\iota$ ), myriads by  $\overset{n}{M}$ .

Example:

$$\overset{\lambda\beta}{M},\zeta\varphi\xi\vartheta = 326,569.$$

0.62. Unit fractions were expressed by the symbol for the denominator, with an accent affixed. An exception was made for the fraction  $1/2$ , for which the symbol  $L'$  was used.

Example:

$$\eta' = \frac{1}{8}$$

0.63. General fractions were expressed either in words or as sums or multiples of unit fractions.

Examples: (D. C. 3):  $\delta\acute{\epsilon}\kappa\alpha \ \acute{\epsilon}\beta\delta\omicron\mu\eta\kappa\omicron\sigma\tau\omicron\mu\omicron\upsilon\omicron\alpha =$  ten seventy-oneths

$$\iota\omicron\alpha' = \frac{10}{71}$$

$$L'\delta' = \frac{1}{2} + \frac{1}{4} = \frac{3}{4}.$$

## 1. Generation and general properties of conics.

The way in which conics are introduced and dealt with in Greek geometry, in spite of deeper resemblances, is outwardly so different from their generation and study in our own day that it seems desirable to precede the exposition of the elements on which Ar-