Chapter 4

Rule of Three

4.1 Nature of rule of three

The typical problem involving the rule of three is the following: When 5 measures of paddy is known to yield 2 measures of rice (and when it is presumed that the same relation will persist always (*vyāpti*)) how many measures of rice will be obtained from 12 measures of paddy?

Here *pramāṇa* = 5, *pramāṇa-phala* = 2, *icchā* = 12 and we have to find the *icchā-phala*.

If for 5 measures of paddy 2 measures of rice are obtained, then for 1 measure of paddy $\frac{2}{5}$ measures of rice ($\frac{pramāṇa\text{-}phala}{pramāṇa}$) will be obtained. Therefore for 12 measures of paddy $12 \times \frac{2}{5} = \frac{24}{5}$ measures of rice will be obtained.

$$icchā\text{-}phala = \frac{icchā \times pramāṇa\text{-}phala}{pramāṇa}. \tag{4.1}$$

This is the rule of three.

It is said that most of mathematical computations are pervaded by *trairāśika-nyāya*, the rule of three, and *bhujā-koṭi-karṇa-nyāya*, the relation between the base, height and the diagonal of a rectangle (Pythagoras Theorem).

K. V. Sarma et al., *Gaṇita-Yukti-Bhāṣā (Rationales in Mathematical Astronomy) of Jyeṣṭhadeva*