

एकाद्युत्तरविधिना रस विन्यासे विलोमतो गुण्येत्
पूर्वेण परं क्रमशो रूपादिचयैर्हरिर्विभजेत्

This translates as follows (*Pāṭiganīta*, 72, Eng. p. 58)

Writing down the numbers beginning with 1 and increasing by 1 up to the (given) number of savours in the inverse order, divide them by the numbers beginning with 1 and increasing by 1 in the regular order, and then multiply successively by the preceding (quotient) the succeeding one. (This will give the number of combinations of the savours taken 1, 2, 3, ..., all at a time respectively.)¹¹

Thus, in the case of 6 savours, one writes down the numbers 1 to 6 in reverse order

$$6, 5, 4, 3, 2, 1$$

These are divided by the numbers in the usual order, to get the quotients

$$\frac{6}{1}, \frac{5}{2}, \frac{4}{3}, \frac{3}{4}, \frac{2}{5}, \frac{1}{6}$$

Then, according to the rule, the number of combinations of savours taken 1 at a time, 2 at a time, etc., up to all at a time are respectively

$$\frac{6}{1}, \frac{6}{1} \times \frac{5}{2}, \frac{6}{1} \times \frac{5}{2} \times \frac{4}{3}, \text{ etc.}$$

Although, the formulae are mostly stated in identical terms, they are applied most flamboyantly by Bhaskara II. For example, to illustrate one of his formulae, Bhaskara asks for the total number of 5 digit numbers whose digits sum to 13.¹²

पञ्चस्थानस्थितैरैकैर्यद्योगस्त्रयोदश
कतिभेदा भवेत्संख्या यदि वेत्सि निगद्यताम्

He then adds in the next verse that although this question involves “no multiplication or division, no squaring or cubing, it is sure to humble the egotistical and evil lads of astronomers”.