Fraction Encyclopedia Article

Fraction

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The word fraction comes from the Latin word *frangere* meaning "to break," (a reference to the name "broken numbers " that many early civilizations used to describe fractions). Fractional numbers have been in use for many thousands of years, possibly originating in Mesopotamia as long ago as 2400 b.c. Clay tablets discovered in the Middle East depict the use of Akkadian, or cuneiform script, symbols representing the fractions 1/2, 1/3, and 5/6. The best-known Egyptian mathematical text is the Rhind papyrus or Ahme papyrus, believed to date from approximately 1700 b.c. The Rhind papyrus begins with a treatment of fractions and computations with fractions, using a symbol similar to a oval, (later replaced by a dot) to designate fractions. However, the Egyptians considered only unit fractions, that is, fractions with a numerator of 1. They symbolized other fractions as sums of such unit fractions (e.g., 1/6 + 1/6 or 1-1/6) except for 2/3, for which they used a special hieroglyphic symbol.

The followers of Pythagoras, active around 530 b.c., enhanced the knowledge of fractions with the development and use of proportions and ratios. In the Alexandrine period, covering 300 b.c. to a.d. 300, Greek mathematicians Archimedes, Heron (first century a.d.), and Diophantus used fractions freely, performing many mathematical operations with them. They made use of the Greek alphabet to write numerals in the following way: fractions were indicated by designating the numerator with one accent mark and the denominator with two accent marks (so 1/2 was symbolized as "'). Oddly enough, Diophantus often wrote the denominator above the numerator, although no symbol or fraction bar separated them.

Our present form of writing fractions is due mainly to the Hindus and the spread of Hindu-Arabic numerals into the Middle East and eventually Europe. The Arabs were the among the first to use the fraction bar to separate the numerator and denominator, but the fraction bar did not become popular in Europe until Italian mathematician Leonardo Fibonacci made use of them in the twelfth century. Fibonacci also followed the Arabian practice of placing the fraction to the left of the integer. By the fourteenth century, the writing of fractional numbers had been standardized to the form we use today.