# Mathematics and Culture Encyclopedia Article

## Mathematics and Culture

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# Mathematics and Culture

Throughout human history the use and understanding of mathematics has been so closely related with the rise of cultures that it would not be unreasonable to say that mathematics is actually one of the prerequisites of culture. Nearly all of the well-known ancient cultures--the Sumerians, the Egyptians (see **Egyptian mathematics**), the Babylonians (see **Babylonian mathematics**), Greeks, Romans, and others--founded their civilizations upon mathematics and mathematically related engineering.

It is interesting to note that knowledge of mathematics appears to predate the rise of civilization. A Neolithic site in Japan, dating from approximately 7000 years ago, contains numerous structures that clearly show cedar-trunk post holes set unerringly 4.2 meters apart. Such uniform accuracy suggests skills in both measurement and engineering. Artifacts have been unearthed at several other Neolithic and Paleolithic sites that can be interpreted as counting or tallying devices. And it has been accurately shown that clay tablets from the Fertile Crescent region of Iraq, tablets that may have been the earliest examples of written language, were actually commercial "contracts" used to tally the amount of commodities (grain, cattle, etc.) to be bartered.

Perhaps the most startling fact regarding the cultural **history of mathematics** is that it may not have only predated culture, it may have predated humanity itself. An exhaustive examination of fossil hand-axes, fashioned between 500,000 and 1,000,000 years ago and wielded by Neanderthals and other hominids, show an understanding of the principle of proportion. Although the individual axes vary widely in their actual sizes, the proportion of length to width is almost always the same. This grasp of the idea of proportion was not directly addressed again until Euclid (c. 325 B.C.-c. 265 B.C.) set it down in his *Elements* hundreds of thousands of years later.