

Mathematics is the study of quantity , structure , space , and change . [Mathematicians](#) seek out patterns , [\[2\]\[3\]](#) formulate new [conjectures](#) , and establish truth by rigorous deduction from appropriately chosen [axioms](#) and definitions . [\[4\]](#) [There](#) is debate over whether [mathematical](#) objects such as numbers and points exist naturally or are human [creations](#) . The mathematician Benjamin Peirce called mathematics "the science that draws necessary conclusions" . [\[5\]](#) Albert Einstein , on the other hand , stated that "as far as the laws of mathematics refer to reality , they are not [certain](#); and as far as they are certain , they do not refer to reality . "[\[6\]](#) [Through](#) the use of abstraction and [logical reasoning](#) , mathematics evolved from counting , calculation , [measurement](#) , and the systematic study of the shapes and [motions](#) of physical objects . Practical mathematics has been a human activity for as far back as written records exist . Rigorous arguments first appeared in Greek mathematics , most notably in [Euclid's](#) Elements . Mathematics [continued](#) to develop , for example in China in [300 BC](#) , in India in [AD 100](#) , and in the Muslim world in [AD 800](#) , until the Renaissance , when [mathematical](#) innovations interacting with new scientific [discoveries](#) led to a rapid increase in the rate of [mathematical](#) discovery that continues to the present day . [\[7\]](#) [Mathematics](#) is used throughout the world as an essential tool in many fields , including natural science , engineering , medicine , and the social [sciences](#) . Applied mathematics , the branch of mathematics concerned with application of [mathematical](#) knowledge to other fields , [inspires](#) and makes use of new [mathematical discoveries](#) and sometimes leads to the development of entirely new [mathematical](#) disciplines , such as [statistics](#) and game theory . [Mathematicians](#) also engage in pure mathematics , or mathematics for its own [sake](#) , without having any application in mind , although practical applications for what began as pure mathematics are often discovered .

mθɪmθtiks iz ðɪ stʌdɪ ov qɒntəteɪ, sʃrʌkʃl̩ ənd
tʃɔːnj. mθɪmætɪstɪnz sek ʊt pɒtɪnz, fɔːmy●lət ny●

konjekctiz ond ist oblish chr●TI bI rigaris dādalkshin from aprōpreitle chōzin oximz ond defanishinz. tīe iz dābœt ōvΛ wetiΛ mōTmōtākōL objekas sach oz nambiz ond pænas exist nōchrΛE α Δ hyomin kreæshinz. tīΛ mōTmātishin benjāmin peis kārld mōTmōtix "tīΛ sīins tīot jræz nesΛsere konklojhinz". olbit IinstIn, on tīΛ ΛtīΛ hond, stætid tīot "oz fΔ oz tīΛ læz ov mōTmōtix rāfur t● reolāte, tīæ Δ not surtin; ond oz fΔ oz tīæ Δ surtin, tīæ d● not rāfur t● reolāte. "Tīr● tīΛ yos ov obsjrokshin ond lojākōL rezāneþ, mōTmōtix ivolvd from kōontēþ, kōlkyōlæshin, meþāmint ond tīΛ sistāmōtik stΛde ov tīΛ shæps ond mōshinz ov fizākōL objekas. prōktākōL mōTmōtix hoz ben æ hyomin øktivāte fæ oz fΔ bōk oz ritin rekænas exist. rigaris Δgyominas furst āpeid in grek mōTmōtix, mōst notible in yōklias olāminas. mōTmōtix kontinyod t● dāvolvip, fæ exΔmpōL in chInΛ in 300 bese, in indel in œede 100, ond in tīΛ mōzlim wuld in œede 800, antil tīΛ rānæsons, wen mōTmōtākōL inΛvæshinz int āoktēþ wiTI ny● sīintifik diskΛvΛrez led t● æ rōpid inkres in tīΛ rœet ov mōTmōtākōL diskΛvΛre tīot kāntinyoz t● tīΛ prezint dæ. mōTmōtix iz yozd Tīrōot tīΛ wuld oz on isenchōL tōwl in mene feiΛas, inklōdeþ nōchrōl sīins, enjānerēþ, medΛsin , ond tīΛ sōshōl sīinsiz. āplid mōTmōtix, tīΛ brΔndh ov mōTmōtix konsurnd wiTI oplākæshin ov mōTmōtākōL nolij t● ΛtīΛ feiΛas, inspIiz ond mœex yos ov ny● mōTmōtākōL diskΛvΛrez ond samtImz leas t● tīΛ divolipmint ov intIΛle ny● mōTmōtākōL disāplinz, sach oz stātistix ond gœem Tīere. mōTmātishinz αlsō ingœej in pyōΛ mōTmōtix, α mōTmōtix fæ ias ōn sœek, wiTlōot hoveþ ene oplākæshin in mInd, αltīō prōktākōL oplākæshinz fæ wot begon oz pyōΛ mōTmōtix Δ ofin diskΛvid.