The Greek Alphabet

Mathematics requires a large number of symbols to stand for abstract objects, such as numbers, sets, functions, and spaces, so the use of Greek letters was introduced long ago to provide a collection of useful symbols to supplement the usual Roman letters.

To us these symbols may seem quite foreign, and they are difficult to become familiar with. However, at the time they were introduced, most scholars had been taught at least some Latin and Greek during their education, so the letters did not seem nearly so strange to them as they do to us. Since then, each new generation of mathematicians has just gotten used to using them.

The table below lists all of the letters in the Greek alphabet, upper-case and lower-case, with their names and pronunciations. The lower-case letters are used more often than the upper-case letters, but the latter are used often enough. The lower-case letters are most often used for variables, such as angles and complex numbers, and for functions and formulas, while the upper-case letters more commonly stand for sets and spaces, and sometimes for repeated arithmetic operations such as adding and multiplying (see Sigma and Pi). In any particular textbook or paper, the way in which these symbols should be interpreted should generally be clear from the context and definitions.

The pronunciations provided are not necessarily the "correct" ones, but reflect the most common pronunciations in use in English speaking countries.

CAP / lower	Name & Description
A α	**ALPHA** (AL-fuh) **First letter of the Greek alphabet.**
B β	**BETA** (BAY-tuh)
Γ γ	**GAMMA** (GAM-uh)
Δ δ	**DELTA** (DEL-tuh)
E ε,ϵ	**EPSILON** (EP-sil-on) **The second form of the lower case epsilon is used as the "set membership" symbol.**
Z ζ	**ZETA** (ZAY-tuh)

H η	**ETA** (AY-tuh)	
Θ θ	**THETA** (THAY-tuh)	
I ι	**IOTA** (eye-OH-tuh)	
K κ	**KAPPA** (KAP-uh)	
Λ λ	**LAMBDA** (LAM-duh)	
M μ	**MU** (MYOO)	
N ν	**NU** (NOO)	
Ξ ξ	**XI** (KS-EYE)	
O o	**OMICRON** (OM-i-KRON) **Rarely used because it looks like an 'o.'**	
Π π	**PI** (PIE) **The lower-case Pi is universally used to represent that number which is the ratio of the circumference of a circle to its diameter. The upper-case Pi is used as the "product" symbol.**	
P ρ	**RHO** (ROW)	
Σ σ,ς	**SIGMA** (SIG-muh) **The capital Sigma is used as the "summation" symbol.**	
T τ	**TAU** (TAU)	
Y υ	**UPSILON** (OOP-si-LON)	

Φ φ,ϕ **PHI** (FEE or FIGH) **The two versions of lower-case Phi are used interchangeably.**

Χ χ **CHI** (K-EYE)

Ψ ψ **PSI** (SIGH)

Ω ω **OMEGA** (oh-MAY-guh) **Last letter of the Greek alphabet.**