Documentation:

This resource is a reference to how to use Algebraic Equation GPT4.
A comprehensive list of examples are provided. The examples are not exhaustive.
Cascade these basic ideas, extend and extrapolate them to use keystrokes and verbose.

Case 1: Linear Expressions/equations

	Mathematics	Keystrokes	Verbalise
a	$3x + 7$	3x + 7	"Three x plus seven"
b	$5 - 2x = -9$	5 – 2x = - 9	"Five minus two x equals negative nine" "Five subtract two x equals negative nine"

Case 2: Fractions (simple variables)

	Mathematics	Keystrokes	Verbalise
a	$\dfrac{x}{3}$	x/3	"x over three"
b	$\dfrac{1}{3}x$	(1/3) x	"One third x"
c	• $\dfrac{2x}{5}$ • $\dfrac{2}{5}x$	• (2x)/5 • (2/5)x	• "Two fifth x" • "Two x over 5" • "Two over 5 x"
d	$\dfrac{2}{7x}$	2/(7x)	"Two over **open** seven x **close**"

It is apparent now that saying "open" denotes "(" and "close" denotes ")" to the GPT.
Notice how we have 3 ways to verbalise Eg. 2c and in Eg. 2dhave to be very specific with denominators.

Case 3: Powers, Exponents

	Mathematics	Keystrokes	Verbalise
a	x^2	x^2	"x square"
b	x^3	x^3 ; x3	"x cube"
c	$5x^4$	5x^4	"5 x power 4"
d	$2x^3 + 3x^2 = 5x + 6$	2x^3 + 3x^2 = 5x + 6	"2x cube plus 3x square equals 5x plus 6"
e	$4x^3 + (2x)^2 = (3x)^3 - 2x + 1$	4x^3 + (2x)^2 = (3x)^3 -2 + 1	"4 x cube plus **open** 2x **close** squared = **open** 3x **close** cube minus 2x plus 1"

Case 4: Radicals

	Mathematics	Keystrokes	Verbalise
a	$\sqrt{x}$	x^(1/2)	"root x"
b	$\sqrt[3]{2x}$	(2x)^(1/3)	"cube root of 2x"
c	$\sqrt{3x+1}$	(3x +1)^(1/2)	"root of **open** two x plus 1 **close**"
d	$\sqrt[3]{2x-1} = 243$	(2x - 1)^(1/3)	"cube root **open** two x minus 1 **close** equals 243"

Notice that the difficulty of keying radicals with symbols is circumvent with representing them by indices.

Case 5: Logarithms

	Mathematics	Keystrokes	Verbalise
a	$\lg x$	Log x	"log x"
b	$\ln x$	ln x	"Lawn x"
c	$\log_4 x$	Log x base 4	"Log x base 4"
d	$\log_x 7$	Log 7 base x	"Log 7 base x"
e	$\log_5(1+4x)$	Log (1 + 4x) base 5	"Log **open** 1 plus 4x **close** base 5"
f	$\log_5(4x-3)^2$	Log (4x - 3)^2 base 5	"Log **open** 4x minus 3 **close** power 2 base 5"
g	$\dfrac{1}{2}\log_5(4x-3)=9$	(1/2) Log (4x -3) base 5 = 9	"Half Log **open** 4x minus 3 **close** base 5 equals 9"

Algebraic Equation GPT4 understands natural language.
It will be able to transcribe the query well if equation is articulated without ambiguity.

Case 6: Trigonometry

	Mathematics	Keystrokes	Verbalise
a	$\sin x$	sin x	"sine x"
b	$\cos(2x+1)$	cos(2x +1)	"cosine **open** 2x plus 1 **close**"
c	$\tan(1+3x)^2$	tan(3x +1)^2	"tangent **open** 1 plus 3x **close** square"
d	$\sec\sqrt{2x-3}=5$	sec[(2x - 1)^(1/2)]	"secant root **open** two x minus 3 **close** equals 5"

Notice that the difficulty of keying radicals with symbols is circumvent with representing them by indices.

Case 7: Calculus

	Mathematics	Keystrokes	Verbalise
a	$\dfrac{d}{dx}(4x^2-1)^3$	d/dx (4x^2 - 1)^3	"diffentiate open 4x squared minus one close power 3 with respect to x"
b	$\displaystyle\int_1^3 \sqrt{4x^2-1}\, dx$	Integrate root (4x^2 - 1) w.r.t x from 1 to 3	Integrate root **open** 4x squared minus 1 **close** with respect to x from 1 to 3