| Symbol | Symbol Name | Meaning / definition | Example |
|---|---|---|---|
| x | x variable | unknown value to find | when $2x = 4$, then $x = 2$ |
| ≡ | equivalence | identical to | n/a |
| ≜ | equal by definition | equal by definition | n/a |
| := | equal by definition | equal by definition | n/a |
| ~ | approximately equal | weak approximation | $11 \sim 10$ |
| ≈ | approximately equal | approximation | $\sin(0.01) \approx 0.01$ |
| ∝ | proportional to | proportional to | $y \propto x$ when $y = kx$, k constant |
| ∞ | lemniscate | infinity symbol | n/a |
| ≪ | much less than | much less than | $1 \ll 1000000$ |
| ≫ | much greater than | much greater than | $1000000 \gg 1$ |
| ( ) | parentheses | calculate expression inside first | $2 * (3+5) = 16$ |
| [ ] | brackets | calculate expression inside first | $[(1+2)*(1+5)] = 18$ |
| { } | braces | set | n/a |
| ⌊x⌋ | floor brackets | rounds number to lower integer | $\lfloor 4.3 \rfloor = 4$ |
| ⌈x⌉ | ceiling brackets | rounds number to upper integer | $\lceil 4.3 \rceil = 5$ |
| x! | exclamation mark | factorial | $4! = 1*2*3*4 = 24$ |
| \| x \| | single vertical bar | absolute value | $\| -5 \| = 5$ |
| f (x) | function of x | maps values of x to f(x) | $f(x) = 3x+5$ |
| (f ∘ g) | function composition | $(f \circ g)(x) = f(g(x))$ | $f(x)=3x, g(x)=x-1 \Rightarrow (f \circ g)(x)=3(x-1)$ |
| (a,b) | open interval | $(a,b) = \{x \mid a < x < b\}$ | $x \in (2,6)$ |
| [a,b] | closed interval | $[a,b] = \{x \mid a \le x \le b\}$ | $x \in [2,6]$ |
| Δ | delta | change / difference | $\Delta t = t_1 - t_0$ |
| Δ | discriminant | $\Delta = b^2 - 4ac$ | n/a |
| ∑ | sigma | summation - sum of all values in | $\sum x_i = x_1+x_2+...+x_n$ |
| ∑∑ | sigma | double summation | $\sum_{i=1}^{2}\sum_{i=1}^{8} x_{i,j} = \sum_{i=1}^{8} x_{i,1} + \sum_{i=1}^{8} x_{i,2}$ |
| ∏ | capital pi | product - product of all values in range of series | $\prod x_i = x_1 \cdot x_2 \cdot ... \cdot x_n$ |
| e | e constant / Euler's number | $e = 2.718281828...$ | $e = \lim (1+1/x)^x$, $x \to \infty$ |
| γ | Euler-Mascheroni constant | $\gamma = 0.5772156649...$ | n/a |
| φ | golden ratio | golden ratio constant | n/a |
| π | pi constant | $\pi = 3.141592654...$ is the ratio between the circumference and diameter of a circle | $c = \pi \cdot d = 2 \cdot \pi \cdot r$ |

**prodigy** Algebra Symbols