

表記 (Notations)

/ 同じ意味

() 付け加えてもよい

[] 言い換え可能

大文字 アクセントのある音節を強調

1 英数字数式の読み方 (How to read equations)

1.1 数 (numbers)

[100] a [one] hundred (one, aを忘れないこと)

[10,000] ten thousand

[628,000] six hundred and twenty-eight thousand

[12,000,000] twelve million

[2,000,000,000] two billion

[2,000,000,000,000] two trillion

[3.55] three point five five

[0.32] zero point three two

[0.333...] zero point three recurring

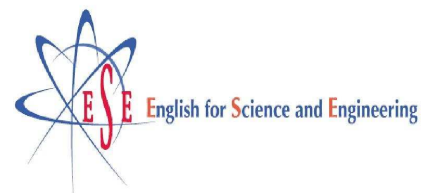
[0.35848484...] zero point three five eighty-four recurring

[20 – 30] twenty to thirty

[4×10^5] four times ten to the fifth/
four times ten to the fifth power/
four times ten to the power of five

[6.5×10^{-3}] six point five times ten to the minus three

[∞] infinity

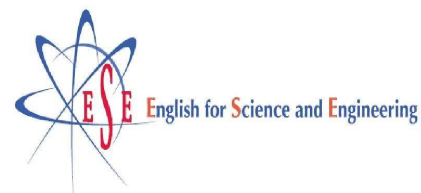


1.2 年号, 時間 (他) (years, time, etc.)

 $[1995]$ nineteen ninety-five $[1800]$ eighteen hundred $[2000]$ two thousand $[2006]$ two thousand six/twenty oh six $[7:00 \text{ a.m.}]$ seven am/ seven in the morning¹ $[2:30]$ two thirty/ half past two/ two half (Br.) $[10:18]$ ten eighteen/ eighteen past (after) ten $[9:45]$ nine forty-five/ a quarter to (of) ten $[\$35.80]$ thirty-five dollars and eighty cents $[1 \text{ cent}]$ a penny $[5 \text{ cents}]$ a nickel $[10 \text{ cents}]$ a dime $[25 \text{ cents}]$ a quarter

1.3 分数 (fractions)

 $[a/b]$ **a over b** $[ab/cd]$ a times b over c times d $[1/n]$ one nth/ one over n $[1/2]$ **one half**/one-half/a half $[1/3]$ **one third**/one-third/a third $[1/4]$ **one quarter**/one-quarter/a quarter $[3/4]$ **three quarters**/three-quarters $[1/5]$ **one fifth**/one-fifth/a fifth

¹o'clock はつかない

$\frac{2}{3}$ two-thirds

$\frac{4}{3}$ four over three/four thirds/four-thirds

$\frac{1}{10}$ one tenth/a tenth/one-tenth

$\frac{3}{7}$ three sevenths/three-sevenths

$\frac{112}{303}$ a [one] hundred (and) twelve over three hundred (and) three

$5\frac{2}{5}$ five (and) two-fifths

$\frac{21}{311}$ twenty-one over three hundred (and) eleven

1.4 添え字 (suffices), 累乗 (powers, roots)

$-x$ minus [negative] x

x' x prime²

\bar{x} x bar

\hat{x} x hat/ x wedge

x_i x sub i

x^i x super i

7^2 seven squared

5^3 five cubed / five to the third power

x^2 x squared

x^3 x cubed/ x to the third power

x^n x to the n th power/ x to the n th/ x to the power n / x to the n

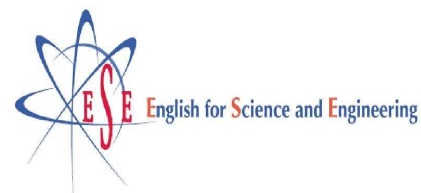
x^{-n} x to the minus n th power/ x to the power minus n / x to the minus n

$x^{1/2}$ x to (the) half power/ the square root of x

$x^{1/3}$ the cube root of x

$x^{1/n}$ the n th root of x

² x dash とも言うが, dash は-の意味もある。



$\sqrt{2}$ the square root of two

$\sqrt[3]{2}$ the cube root of two

$\sqrt[n]{x}$ the n th root of x

$\sqrt{x+y}$ the square root of the sum of x plus y

1.5 加法・減法・乗法・除法(他) (addition, subtraction, multiplication, division, etc.)

$x - y$ x minus y

$x + y$ x plus y

$x \pm y$ x plus minus y / x plus or minus y

$x \mp y$ x minus or plus y

$xy, x \times y$ x times y / x multiplied by y

$x \cdot y$ x dot y

$x \div y$ x divided by y

x/y x over y

$x : y$ the ratio of x to y

$n!$ n factorial / factorial n

$\binom{n}{a}$ binomial n over a / binominal coefficient n over a **n choose a**

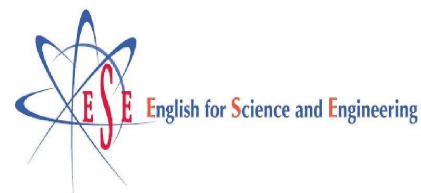
$1 \cdots 5$ one to five

$1 + 3 + 5 + \cdots$ one plus three plus five dot dot dot

$x(y+z)$ x times the sum of y plus z / x open parenthesis y plus z close parenthesis³

$(x+y)z$ open parenthesis x plus y close parenthesis multiplied by z /
(initial) parenthesis x plus y (final) parenthesis multiplied by z ³

³イギリス英語では parenthesis でなく bracket を用いる。なお、括弧という場合は parentheses, brackets と複数形にする。



$[x]$ x in brackets

$\frac{1}{2}\{x[y+(z-w)]\}$ one half times open brace x open bracket y plus open parenthesis z minus w close parenthesis close bracket close brace

$x'y''$ x prime times y double prime/ x prime times y second prime

$|z|$ modulus of z / absolute value of z

$\sphericalangle A$ angle A

$\perp A$ right angle A

1.6 ベクトル, 行列, 関数 (vectors, matrices, functions)

\vec{x}, \mathbf{x} vector x

$\mathbf{x} \cdot \mathbf{y}$ x dot y ⁴

$\mathbf{x} \times \mathbf{y}$ x cross y ⁴

$\begin{pmatrix} a_{11} & a_{12} & a_{13} \\ a_{21} & a_{22} & a_{23} \\ a_{31} & a_{32} & a_{33} \end{pmatrix}$ matrix with the diagonal a sub one one to a sub three three

$\det A$ determinant A

$f(x)$ function of x / f of x

$f^{-1}(x)$ inverse of the function f of x /
 f of x to the power minus one

$\exp(x)$ e to the x th power/ e to the power x

$\exp(ix)$ e to the power ix

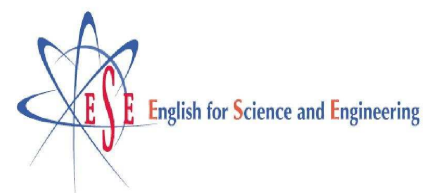
$\ln x$ the natural log of x

$\log x$ the log of x

$\log_{10} x$ the common log of x

$\log_2 x$ the binary log of x / the log of x to the base two

⁴ 内積は dot [scalar, inner] product, 外積は cross [vector, outer] product。Outer product は外積以外の意味に使われることもあるので注意。



$\lim_{x \rightarrow \infty} f(x)$ the limit of the function f of x as x goes to [approaches] infinity

$\sin x$ sine x

$\cos x$ cosine x

$\tan x$ tangent x

$\operatorname{cosec} x$ cosecant x

$\sec x$ secant x

$\cot x, \operatorname{ctg} x, \operatorname{ctn} x$ cotangent x

$\sinh x$ sinch x / shine x / hyperbolic sine x

$\cosh x$ kosh x / hyperbolic cosine x

$\tanh x$ than x / tanch x / hyperbolic tangent x

$\operatorname{cosech} x$ kosetch x / hyperbolic cosecant x

$\operatorname{sech} x$ setch x / hyperbolic secant x

$\operatorname{coth} x$ koth x / hyperbolic cotangent x

$\arcsin x$ arc sine x / the angle whose sine is x

$\arccos x$ arc cosine x / the angle whose cosine is x

$\arctan x$ arc tan x / the angle whose tangent is x

$\operatorname{arccosec} x$ arc cosec x / the angle whose cosecant is x

$\operatorname{arcsec} x$ arc sec x / the angle whose secant is x

$\operatorname{arccot} x, \operatorname{arccotn} x$ arc cot x / the angle whose cotangent is x

$\cos^{-1} x$ inverse cosine x / cos minus one x

$\sin^{-1} x$ inverse sine x / sine minus one x

$\tan^{-1} x$ inverse tangent x / tangent minus one x

$\cot^{-1} x$ inverse cotangent x / cotangent minus one x

$\sec^{-1} x$ inverse secant x / secant minus one x

$\cosh^{-1} x$ inverse kosh x / inverse hyperbolic cosine x / kosh minus one x

$\sinh^{-1} x$ inverse shine x / inverse hyperbolic sine x / shine minus one x



$\tanh^{-1}x$ inverse than x / inverse hyperbolic tangent x / than minus one x

$\operatorname{sech}^{-1}x$ inverse setch x / inverse hyperbolic secant x / setch minus one x

1.7 微分, 積分, 総和 (derivatives, differentials, integrals, sums)

Δf delta f / finite difference of f

dx differential of x

$\frac{df}{dx}$ $d f d x$

$\frac{df(x)}{dx}$ $d f$ of $x d x$

$\frac{\partial f}{\partial x}$ dif f to dif x / the partial derivative of f with respect to x / round f round x

$D_x f$ D sub x of f / the derivative of f with respect to x

$\delta f(x)$ small difference in the function f of x

$\int_a^b f(x)dx$ the integral from a to b of f of x with respect to x

\iint double integral

\iiint triple integral

\oint circuital integral / integral round a closed circuit

$\sum_{i=1}^n a_i$ the sum from i equals one to n of a sub i /
the sum of all terms of a sub i from i equals one to i equals n

$\prod_{i=1}^n a_i$ the product from i equals one to n of a sub i /
the product of all terms of a sub i from i equals one to i equals n

1.8 等式, 不等式 (equations, inequality)

$20 + 12 = 32$ Twenty plus twelve equals thirty-two.

$50 - 16 = 34$ Fifty minus sixteen equals thirty-four.

$7 \times 5 = 35$ Seven times five is [equals, is equal to] thirty-five.



$15 \div 5 = 3$ Fifteen divided by five equals three.

$18/2 = 9$ Eighteen over two is nine.

$10/20 = 1/2$ Ten-twentieths is reduced to one half [one-half].

$31 \div 7 = 4r3$ Thirty-one divided by seven is four with a remainder of three.

$4.1 - 8.3 = -4.2$ Four point one minus eight point three equals minus [negative] four point two.

$2^2 = 4$ Two squared is four.

$2^3 = 8$ Two cubed is eight.

$2 : 3 = 4 : 6$ Two is to three as four is to six.

$x = y$ x equals y . / x is equal to y .

$x \parallel y$ x is parallel to y .

$\therefore x = y$ Therefore x equals y .

$\because x = y$..., since x equals y .

$x : y = z : w$ x is to y as z is to w .

$3x + 2x = 5x$ Three x plus two x equals five x .

$y = -5x^2 + 2x + 4$ y equals minus [negative] five x squared plus two x plus four.

$$(x + y)^2 = x^2 + 2xy + y^2$$

The quantity x plus y squared is x squared plus two xy plus y squared.^{5/}

Open parenthesis x plus y close parenthesis squared is x squared plus two xy plus y squared.³

$$(x + y)(x - y) = x^2 - y^2$$

The quantity x plus y times the quantity x minus y equals x squared minus y squared.⁶

Open parenthesis x plus y close parenthesis, open parenthesis x minus y close parenthesis, is equal to x squared minus y squared.³

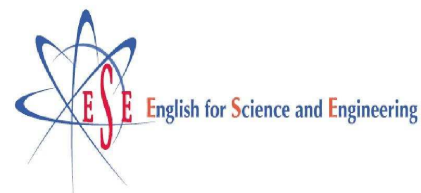
$$x^2 + y^2 = z^2$$

x squared plus y squared equals z squared.⁷

⁵quantity x plus y のあと，一呼吸おく。

⁶quantity x plus [minus] y のあと，一呼吸おく。

⁷ピタゴラスの定理, Pythagoran propostion [theorem]



$$x^3 + y^3 = z^3$$

x cubed plus y cubed equals z cubed.⁸

$$y = f(x)$$
 y equals f of x .

$$x \neq y$$
 x is not equal to y .

$$x > y$$
 x is greater [more] than y .

$$x < y$$
 a is less [smaller] than b .

$$x \geq y$$
 x is greater [more] than or equal to y ./ x is equal to y or greater [more].

$$x \leq y$$
 x is less [smaller] than or equal to y ./ x is equal to y or less [smaller].

$$x \gg y$$
 x is much greater than y .

$$x \ll y$$
 x is much less [smaller] than y .

$$x + y > z$$
 x plus y is greater than z .

$$2x + y \leq z$$
 Two x plus y is less than or equal to z ./ Two x plus y is equal to z or less.

$$x \rightarrow y$$
 x tends to y ./ x approaches y .

$$x \approx y$$
 x is nearly equal to y ./ x is approximately equal to y .

$$x \equiv y$$
 x is identical with [to] y .

$$x \not\equiv y$$
 x is not identical with [to] y .

$$x \perp y$$
 x is perpendicular to y .

$$x \parallel y$$
 x is parallel to y .

$$x \sim y$$
 x is asymptotic to y .

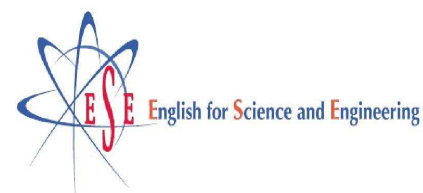
$$x \propto y$$
 x is proportional to y ./ x is in proportion to y .

$$x \propto 1/y$$
 x varies inversely with y ./ x is inversely proportional to y .

$$\angle A = \angle B$$
 Capital a has the same angle as capital b ./ The angle A is equal to the angle B .

$$ABC \equiv DEF$$
 All capital abc coincides with all capital def .

⁸cf. フェルマーの最終定理, Fermat's last theorem



2 Glossary

2.1 Basic terms

足す plus

引く minus

かける times, MULtiplied by

わる over, deVIDed by

公理 AXiom

定義 defiNition

定理 THEorem

系 CORollary

証明 proof

代数 ALgebra

幾何 geOMetry

解析 aNALysis

整数 INteger, INtegral NUMBER

素数 prime NUMBER

自然数 CARdinal NUMBER

序数 ORdinal NUMBER

偶数 Even NUMBER

奇数 odd NUMBER

最大公約数 greatest COMmon diVIsor

最小公倍数 least COMmon MULTiple

因数 FACTor

素因数 prime FACTor

因数分解 factoriZation

素因数分解 factoriZation in prime NUMbers

小数 DECimal

分数 FRACtion

分母 deNOMinator

分子 NUMerator

四捨五入 round off

切り上げ round up

切り捨て round down

実数 REal NUMBER

虚数 iMAGinary NUMBER

複素数 comPLEX NUMBER/
COMplex NUMBER

比例 proPORtion

Ex.) A is proPORtional to B./
A is in proPORtion to B.

正比例 diRECT proPORtion

反比例 INverse proPORtion

Ex.) A is INversely proPORtional to B.

等式 eQUation

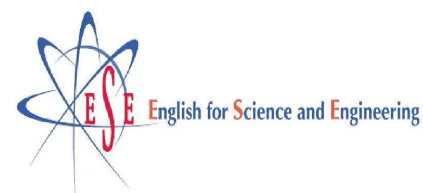
1 次方程式 SIMple eQUation

線形方程式 LINear eQUation

2 次方程式 quaDRATIC eQUation

3 次方程式 CUBic eQUation

n 次方程式 n th-deGREE eQUation



微分方程式 differENTIAL eQUAtion

偏微分方程式 PARTial differENTIAL eQUAtion

連立方程式 simulTANeous eQUAtion

関数 FUNCtion

1 次関数 LInear FUNCtion

2 次関数 quaDRATIC FUNCtion

微分 differENTIAL

微分法 differentiAtion

導関数 deRIVative

積分 INtegral

積分法 inteGRAtion

合同 conGRUence/ conGRUent /CONgru-
ence/CONgruent

相似 simiLARity/ SIMilar

対称 SYMMetry

横幅 width

高さ height

奥行き depth

長さ length

重さ weight

面積 ARea

体積 VOLume

底辺 base

頂点 VERTex

面 face

側面 LATeral face

辺 (三角形) side

円 circle

楕円 eLIPSE / Oval

半径 RAdius

直径 diAMeter

三角形 TRIangle

直角三角形の辺 leg/ hyPOTenuse **adjacent opposite**

二等辺三角形 iSOSceles TRIangle

直角三角形 right TRIangle

正三角形 equiLateral TRIangle

不等辺三角形 scaLENE [SCAlene] TRIangle

四角形, 四角形 quadriLateral, QUADrangle
(米), quadRANgle(英)

平行四角形 paralLELogram

台形 TRAPezoid

不等辺四角形 traPEzium⁹

正方形 square

長方形 RECTangle **oblong**

菱形 RHOMbus = diamond

五角形 PENtagon

六角形 HEXagon

八角形 OCtagon

多角形 POLygon

⁹イギリス英語では trapezoid が不等辺四角形, trapezium が台形



凸多角形 conVEX POLygon

凹多角形 conCAVE POLygon

角柱 prism

角錐 PYRamid

円柱 CYLinder

円錐 cone

2.2 ベクトル解析 (vector analysis)

$\nabla V, \text{grad}V$ NABla CAPital V /
GRADient CAPital V

$\nabla \cdot \vec{E}, \text{div}\vec{E}$ diVERgence of VECtor field
CAPital E

$\nabla \times \vec{E}, \text{rot}\vec{E}$ roTATION of VECtor field
CAPital E

ΔV LaPLACian CAPital V

2.3 単位 (units)

53 grams, 2 centimeters のように複数形をとる。しかし, gs, cms のようにはせず, g, cm のままでよく, ピリオドもいらない。

[m] MEter

[cm] CENTImeter

[cm⁻¹] reCIProcal CENTImeter/
per CENTImeter

[mol⁻¹] per mole (発音は moul と長母音)

[s] SECond

[g] gram

[kg] KILOgram

[N] NEWton

[J] joule

[erg] erg

[A] AMPere

[C] COUlomb

[Ω] ohm (発音は oum)

[S] SIEmens

[T] TESLa

[Pa] pasCAL

[Wb] WEber

[K] KELvin

[°C] deGREE CENTigrade/
deGREES CELsius¹⁰

[M] MEGa- 10⁶

[G] GIGa- 10⁹

[T] TERa- 10¹²

[P] PETa- 10¹⁵

[E] EXa- 10¹⁸

[Z] ZETta- 10²¹

[m] MILli- 10⁻³

[μ] MIcro- 10⁻⁶

[n] NAno- 10⁻⁹

[p] PIco- 10⁻¹²

[f] FEMto- 10⁻¹⁵

[a] ATto- 10⁻¹⁸

[z] ZEPTo- 10⁻²¹

¹⁰華氏は FAHrenheit, 摂氏 = (華氏 - 32) * 5/9

