$\lim_{n \to \infty} a^n = 0$; $|a|<1$; $n \in N$

THE LIMIT OF a to the power of n as n approaches plus infinity is equal to zero

the absolute value of a is less than 1

n is a natural number

$\lim_{n \to \infty} \frac{n!}{n^n} = 0$

THE LIMIT OF THE FRACTION n FACTORIAL OVER n TO THE POWER OF n (n to the n-th power) as n tends to plus infinity is equal to zero

$\lim_{n \to \infty} \sqrt[n]{\frac{1}{n!}} = 0$ # THE LIMIT OF THE n-th root of the fraction 1 over n factorial is equal to zero

$\lim_{n \to \pm\infty} \left(1+\frac{1}{x}\right)^x = e$ # THE LIMIT OF 1 PLUS 1 over x that sum to x tends to plus or minus infinity is equal to e

$\lim_{x \to +\infty} a^x = +\infty$; $0<a<1$

THE LIMIT OF a to x as x tends to plus infinity IS EQUAL TO PLUS INFINITY

0 IS LESS THAN a WHICH IS LESS THAN 1

$y = x^n \Rightarrow y' = nx^{n-1}$

IF y IS EQUAL TO x TO THE n-TH POWER THEN THE FIRST DERIVATIVE OF y IS EQUAL TO n TIMES x TO THE POWER OF n-1

$y = a^x \Rightarrow y' = a^x \ln a$; $x>0$, $a \in R$

y is equal to exponential function of x with the base a IMPLIES THAT THE FIRST DERIVATIVE OF y IS EQUAL TO a to x that quantity times times the natural logarithm of a ;

x is greater than zero , a is a real number

$y=\sqrt[n]{x} \Rightarrow y' = \frac{1}{n\sqrt[n]{x^{n-1}}}$

y IS EQUAL TO THE n-TH root of x IMPLIES

THAT THE FIRST DERIVATIVE OF y IS EQUAL TO 1 OVER THE PRODUCT OF n AND THE n-TH ROOT OF x TO THE POWER OF n-1

$y=\log_a x \Rightarrow y' = \frac{1}{x\ln a}$; $x>0, a>0, a\neq 1$

IF y is equal to the logarithm of x to the base a then the first derivative of y is equal to 1 over the product of x and the natural logarithm of a

x is greater than 0, a is not equal to 1

$y = x^n \Rightarrow y^{(n)} = n!$

y IS EQUAL TO x to the n-th power implies that the n-th derivative of y is equal to n factorial

$y=e^x \Rightarrow y^{(n)} = e^x$

if y is equal to the exponential function of x with the base e then the n-th ~~power~~ derivative ~~of~~ of y is equal to exponential function of x with the base e

$y = a^{kx} \Rightarrow y^{(n)} = (k\ln a)^n a^{kx}$; $a>0, k\in\mathbb{R}$

if y is equal to a to k times x then the n-th derivative of y is equal to k times the natural logarithm of a all to the n-th power times a to the product of k and x

a is greater than zero and k is a real number

$\frac{d(v \pm u)}{dt} = \frac{dv}{dt} \pm \frac{du}{dt}$

the derivative of v plus or minus u with respect to t
is equal to the derivative of v with respect to t
plus or minus the derivative of u with respect to t

$\frac{d(vu)}{dt} = \frac{dv}{dt}u + v\frac{du}{dt}$

the derivative of the product v and u with respect to
t is equal to the derivative of v with respect
to t times u plus v times the derivative of u
with respect to t

$\int a^x dx = \frac{a^x}{\ln a} + c$; $a > 0$, $a \neq 1$

THE INTEGRAL OF THE EXPONENTIAL FUNCTION OF x WITH THE
BASE a with respect to x is equal
to a to x over the natural logarithm of a
plus c ; a is greater than 0 , a is not equal to 1

$\int \frac{dx}{x} = \ln|x| + c$, $|x| \neq 1$

THE INTEGRAL OF 1 over x WITH RESPECT TO x
is equal to the natural logarithm of the absolute value of x
plus c ; THE ABS. VALUE OF x IS NOT EQUAL TO 1

$\int \frac{dx}{x^2 - 1} = \frac{1}{2} \ln \left| \frac{x-1}{x+1} \right| + c$; $|x| \neq 1$

THE INTEGRAL OF ONE OVER THE DIFEKFERENCE OF x SQUARED
MINUS 1 WITH RESPECT TO x IS EQUAL TO A HALF TIMES
THE NATURAL LOGARITHM OF THE ABSOLUTE VALUE OF
THE FRACTION WHOSE NUMERATOR IS x MINUS 1 AND WHOSE
DENOMINATOR IS x plus 1 THAT ALL PLUS c ;
THE ABSOLUTE VALUE OF x IS NOT EQUAL TO 1

$$\# \int \frac{x\,dx}{ax+b} = \frac{x}{a} - \frac{b}{a^2} \ln|ax+b|$$

THE INTEGRAL OF THE FRACTION x OVER THE SUM a times x ~~and~~ plus b with respect to x is equal to x over a minus the product ~~of~~ b over a squared times the natural logarithm of the absolute value of THE SUM a times x plus b

$$\# \int (ax+b)^r dx = \frac{1}{(r+1)a} (ax+b)^{r+1} \quad ; a \neq 0 , b \neq 0 , r \in \mathbb{R} \setminus 1$$

THE INTEGRAL OF a times x plus b that sum to r with respect to x is equal to 1 over the product of r plus 1 and a that fraction times the sum a times x plus b all to r plus 1

a is not equal to zero, b is not equal to zero

r is a real number except for 1

$a(b+c)$ A TIMES THE SUM OF b AND c

$a(b+c)+d$ A TIMES THE SUM OF b AND c, THAT QUANTITY PLUS d

$a[b+c-e(f-g)]$ A TIMES ~~THE~~ OPEN SQUARE BRACKET b PLUS c MINUS e TIMES THE DIFFERENCE f MINUS g CLOSED SQUARE BRACKETS.

$\frac{a+b}{d}$ a plus b, that sum over d

$a+\frac{b}{c}$ a plus the fraction b over c

$a+\frac{b}{c+d}$ a plus the fraction whose numerator is b and whose donomithator is the sum of c and d

$\frac{a+b}{c}+d$ a plus b, that sum over c that all plus d

$a+\frac{b}{c}+d$ a plus the fraction whose numerator is b and whose denominator is c that quantity plus d

$\frac{a}{b}+\frac{c}{d}$ a over b, that quantity plus the fraction c over d

$\frac{a}{b+\frac{c}{d}}$ the fraction whose numerator is a AND DENOMINATOR IS THE SUM b PLUS THE FRACTION c over d

$\frac{\frac{a}{b}}{\frac{c}{d}}$ THE FRACTION WHOSE numerator IS THE FRACTION a over b AND WHOSE DENOMINATOR IS THE FRACTION c over d

$\frac{\frac{a+b}{c}}{d}$ THE FRACTION WHOSE NUMERATOR IS THE FRACTION THE SUM a plus b over c and ~~the~~ WHOSE DENOMINATOR IS d

$\frac{c}{d}(a+b)$ c over d, that fraction TIMES THE sum of a and b

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$ x is equal to the fraction whose numerator is minus b plus or minus the square root of the difference b squared minus four times a times c and whose denominator is the PRODUCT TWO TIMES a

$\sin(\alpha \pm \beta) = \sin\alpha \cos\beta \pm \cos\alpha \sin\beta$

THE SINE OF α plus or minus β IS EQUAL TO THE SINE OF α TIMES THE COSINE OF β PLUS OR MINUS THE COSINE OF α TIMES THE SINE OF β

$\tan(\alpha \pm \beta) = \dfrac{\tan\alpha \pm \tan\beta}{1 \mp \tan\alpha \tan\beta}$

THE TANGENT OF α PLUS OR MINUS β IS EQUAL TO THE TANGENT OF α PLUS OR MINUS THE TANGENT OF β ~~over~~ THAT QUANTITY OVER 1 MINUS OR PLUS THE PRODUCT OF THE TANGENT~~of~~ OF α TIMES THE TANGENT OF β

$\sin\alpha = 2\sin\frac{\alpha}{2}\cos\frac{\alpha}{2}$

THE SINE OF α IS EQUAL TO TWO TIMES THE SINE OF HALF OF α THAT ALL TIMES THE COSINE OF HALF OF α

$\cos\alpha = \cos^2\frac{\alpha}{2} - \sin^2\frac{\alpha}{2} = 1 - \sin^2\frac{\alpha}{2} = 2\cos^2\frac{\alpha}{2} - 1$

THE COSINE OF α IS EQUAL TO THE SQUARE POWER OF THE COSINE OF HALF OF α MINUS THE SQUARE POWER OF THE SINE OF HALF OF α WHICH IS EQUAL TO 1 MINUS THE SQUARE POWER OF SINE OF HALF OF α WHICH IS EQUAL TO TWO TIMES THE SQUARE POWER OF COSINE OF HALF OF α THAT ALL MINUS 1.

$\cos\alpha + \cos\beta = 2\cos\frac{\alpha+\beta}{2}\cos\frac{\alpha-\beta}{2}$

THE SUM OF THE COSINE α AND THE COSINE OF β IS EQUAL TO 2 TIMES THE COSINE OF THE SUM OF α and β OVER TWO THAT ALL TIMES THE COSINE OF THE ~~SUM~~ DIFFERENCE α AND β OVER 2

$\cos(n\alpha) = \cos^n\alpha - \binom{n}{2}\sin^2\alpha\cos^{n-2}\alpha + \binom{n}{4}\sin^4\alpha\cos^{n-4}\alpha - \dots$

THE COSINE OF n TIMES α IS EQUAL TO THE n-TH POWER OF THE COSINE α MINUS n CHOOSE 2 TIMES THE SECOND POWER OF ~~α~~ THE SINE ~~α~~ OF α TIMES THE $(n-2)$-nd POWER OF THE COSINE OF α PLUS n CHOOSE 4 TIMES THE ~~4~~ FOURTH POWER OF THE SINE OF α TIMES $(n-4)$th POWER OF THE COSINE OF α...

$\tan(4\alpha) = \frac{4\tan\alpha - 4\tan^3\alpha}{1 - 6\tan^2\alpha + \tan^4\alpha}$

THE TANGENT OF 4 TIMES α IS EQUAL TO THE FRACTION WHOSE NUMERATOR IS 4 TIMES the tangent of α MINUS 4 TIMES THE THIRD POWER OF THE tangent of α AND WHOSE DENOMINATOR IS 1 MINUS SIX TIMES THE SQUARE POWER OF THE TANGENT OF α PLUS THE FOURTH POWER OF THE TANGENT OF α