

Index

A	
abscissa axis	31
absolute constants	7
absolute value	6
Arccos	
principal value of	82
Arccot	
principal value of	82
Arcsin	
principal value of	80
Arctan	
principal value of	82
argument	8
astroid	569
slant	572
asymptote	53
horizontal	53
left	54
right	54
two-sided	54
B	
bijection	8
binomial coefficient	631
biquadratic function	197
C	
cardioid	565
catenary	604
directrix of	604
even resistance	605
vertex of	604
Cauchy criterion	25
Cauchy formula	452
cissoid of Diocles	547
cochleoid	610
concave	
(function)	47
curve at point	458
function	47
conchoid	558
oblique	561
of Nicomedes	560
constant	7
convex	
(function)	47
curve at point	458
function	47
coordinate axes	31
coordinate system	
Cartesian	9, 31
rectangular	31
coordinates	31
Cornu's spiral	620
cosecant hyperbolic	235
cosine	
hyperbolic	228
curve	80
cotangent	
hyperbolic	228
curve	80
critical point	456
cross curve	585
cubic parabola	195
curve	585
algebraic	348
algebraic of degree n	531
antiradial	622
Archimedean spiral	263, 264
Cassinian	572
conchoid	347
cycloidal	563
decomposable	532
Gaussian	145
heart-shaped	274
hyperbolic	593
hyperbolism of	394
leaf "roses"	267
lituus	602
logarithmic spiral	345
mixed cubic	549
parabolic	593
Pascal snail	279
reducible	532
singular point of	521

transcendental	348	folium of Descartes	544
curve of Guido Grandi	584	formula of finite increments	451
curve of Sturm	615	fraction	
curves of Cesaro	620	elementary rational	213
curves of Perseus	579	Fresnel integral	
curves of Ribaucour	619	generalized	656
cycloid	612	Fresnel integrals	655
curtaite	612	function	8
prolate	612	Airy	682
		algebraic	16
		alpha exponential	649
		Anger	684
D		antiperiodic	21
dilogarithm	649	auxiliary Airy	684
double line	587	auxiliary Fresnel integral cosine .	658
double point	515	auxiliary Fresnel integral sine .	658
		auxiliary integral cosine	652
		auxiliary integral sine	652
E		Basset	668
ellipse	536	Bessel	663
elliptic integral		Bessel modified	666
complete	733	Bessel of fractional order	678
of first kind	731	Bessel of the third kind	666
of second kind	731	beta	637
of third kind	731	beta exponential	649
empty set	4	bijective	8
epicycloid	563	biquadratic	197
epiellipsoid	616	bounded	17
epitrochoid	565	bounded at a point	18
equation		complementary	658
characteristic	373	concave	47
equiangular spiral	602	cone	731
equitangential curve	608	continuity of	28
equivalent		continuous	28
infinitely small functions	28	convex	47
evolute	617	Coulomb wave	691
exponential curve	610	Dawson integral	661
extremal value		decreasing	18
of a function	455	derivative of	447
extremum		derivative of order n	449
of a function	455	differentiable	448
		differentiation of	447
F		Dirac's delta	758
Fermat's theorem	450	domain of	8, 37
folium		double factorial	625
simple	569	elliptic	735
straight double	569		
straight trifolium	569		

elliptic cylinder	744	limit of	24
error	658	logarithmic	75
even	19	logarithmic integral	649
even periodic continuation of	44	Lommel-Weber	684
explicit form	11	Lurch	755
exponential	75	Macdonald	668
fractional linear	207	Mathieu	744
Fresnel integral cosine	655	modified Bessel of	668
Fresnel integral sine	655	modified spherical Bessel	679
$G(x)$	642	modified Struve	687
Gauss hypergeometric	692	monotone	18
generalized complementary	659	multivalued	17
graph of	10	Neumann	663, 664
greatest lower bound of	18	nondecreasing	18
Hankel	663, 666, 668	nonincreasing	18
Heaviside	756	odd	19
Hermite	721	odd periodic continuation of	43
hexagamma	639	of paraboloid of revolution	700
Hurwitz	753	one-to-one	8
hyperbolic Struve	689	onto	8
hypergeometric	692	parabolical cylinder	701
implicit form	11	parametric form	11
incomplete gamma	642	pentagamma	639
increasing	18	periodic	20
infinitely small	27	periodic continuation of	42
injective	8	piecewise monotone	18
integer integral	645	polygamma	639
integer rational	16	power	57
integral arc tangent	652	principal elementary	15
integral cosine	650	probability integral	658
integral exponential	645	psi	638
integral sine	650	range of	8, 38
into	8	rational	16
$\text{Inu}(z)$	668	Riccati-Bessel	682
$\text{inv erf}(x)$	660	second-order derivative of	448
invertible	14	single-valued	17
irrational	16	spherical Bessel	678
Jacobi of second kind	708	strictly monotone	18
Jacobian amplitude	735	Struve	686
Kelvin	673	tetragamma	639
$K_v(z)$	668	theta	743
Kummer	695	Thompson	673
lambda	739	torus	731
least upper bound of	18	transcendental	17
Legendre	726	Tricomi	699

trigamma	639
trigonometric	76
triple factorial	625
unbounded	17
variation of	18
Weber	663, 684, 701
Weber-Hermite	701
Whittaker	700
function Legendre	
first kind	727
second kind	727
function Mathieu	
radial	746
functions	
composition of	13
equal	38
identical	38
of general type	20
principal inverse trigonometric . .	80
symmetric with respect to vertical line	590
G	
gamma function	635
graph	
characteristic point of	50
greatest lower bound	6
greatest lower bound of function . . .	18
H	
hyperbola	538
conic section hyperbolism	373
defective	373
hyperbolic	373
parabolic	373
hyperbola parabolism	373
hyperbolic spiral	598
conchoid of	599
hypocycloid	565
extended	565
shortened	565
hypotrochoid	565
I	
image of set	8
incomparable	
infinitely small functions	28
increment	28
infinitely small function	27
inflection point	50, 458
injection	8
inner function	144
integral	
elliptic	731
Euler of the first kind	635
integral Spencer's	649
interval of constant sign	45
inverse mapping	14
involute	
second	617
J	
Jacobi polynomial	704
Jensen's inequality	49
K	
kappa curve	578
L	
Lagrange's formula	451
Lagrange's theorem	451
least upper bound	6
least upper bound of function	18
lemniscate of Bernoulli	575
limacon of Pascal	562
limit	
left-hand	25
right-hand	25
limit of a number sequence	24
limit of function	24
logarithmic spiral	602
lower bound	6
M	
Maclaurin's formula	454
mapping	
bijective	8
injective	8
into	8
invertible	14
one-to-one	8

onto	8	singular	515			
mean value theorem	451	point of discontinuity	28			
N						
neighborhood of point	6	point of infinite discontinuity	29			
neoide	598	polar angle	32			
node curve	578	principal	33			
number		polar axis	32			
Bernoulli	625	polar radius	32			
Euler	628	polar tractrix	608			
real algebraic	4	pole	32			
real transcendental	4	polylogarithm	650			
number sequence	24	polynomial	16			
number set	4	associated Jacobi	709			
O						
ophiurida	552	Bernoulli	625			
order of smallness	27	Chebyshev	722			
ordered pair	5	Euler	629			
ordinate axis	31	Gegenbauer	709			
origin	31	Hermite	718			
outer function	144	Laguerre	714			
oval		Legendre	711			
Cassinian	572	Pochhammer	634			
oval of Descartes	572	spherical	726			
oval of Munger	586	system of orthogonal	703			
P						
parabola	541, 556	ultraspherical	709			
cubic	195, 373	polynomial coefficient	633			
prolate	373	pseudohelix	621			
quadratic	58	pseudosphere	608			
cubic	58	Q				
patterned curve	622	quadratrix of Dinostratus	608			
pericycloid	565	R				
period		radial curve	622			
principal	21	real axis	4			
plane		real numbers				
coordinate	31	set of	3			
point		relative extremum	51			
degree of	534	relative maximum	51			
nonsingular	515	relative minimum	51			
of discontinuity of the first kind	28	remainder				
of discontinuity of the second kind	29	Cauchy form of	454			
removable	29	Lagrange form of	454			

S	
secant	
hyperbolic	228
sequence	
convergent	24
divergent	24
set	
bounded	6
bounded from above	6
bounded from below	6
sets	
difference of	5
direct product of	5
intersection of	5
symmetric difference of	5
union of	5
sine	
hyperbolic	228
sine curve	80
slide curve	585
sinusoidal spirals	582
algebraic	598
left	596
right	596
spiral of Archimedes	596
step	596
spiral of Galileo	600
spiral of Sturm	617
spiric curve	579
Steiner curve	568
strict relative maximum	51
strict relative minimum	51
strophoid	550
slant	552
subset	4
symmetric set	19
symmetry	
center of	40
with respect to a point	40
with respect to vertical line	39
T	
tangent	
hyperbolic	228
tangent curve	80
U	
Taylor's formula	452
theorem	
Bolzano-Cauchy (first)	30
Bolzano-Cauchy (second)	30
Weierstrass (first)	30
Weierstrass (second)	30
theorem on	
algebraic operations with	
continuous functions	29
composition of continuous functions	29
continuity of elementary functions	29
continuity of monotone function .	29
tractrix	606
vertex of	606
trident	373
trifolium	
straight	569
trilogarithm	649
trisectrix of Longchamps	549
trisectrix of Maclaurin	553
trochoid	565, 614
extended	565
shortened	565
turning point	515
V	
upper bound	6
W	
variable	7
bounded	7
continuous	7
decreasing	7
discrete	7
increasing	7
independent	8
monotone	7
variation of function	18
versiera of Agnesi	555
W	
witch of Agnesi	556