

High-Frequency Morphemes in Math

The following tables list high-frequency morphemes (i.e., prefixes, suffixes, and Latin and Greek roots) in the math subject area, followed by a brief definition and two example words that include the morpheme. Teachers can use this list to identify high-utility morphemes to explicitly teach during math lessons. These lists are based on research conducted by Lane et al. (2019) on high-utility morphemes in academic words.

Note: The most common form of the morpheme is listed in the first column, although there may be other forms (e.g., the morpheme “cap” has the variants “cep” and “cip,” among others).

To learn more about explicit morphology instruction and strategies for teaching morphemes, see the Iowa Reading Research Center’s *Effective Morphology Instruction for Secondary Students Across Content Areas* eLearning module.

References

Lane, H. B., Gutlohn, L., & van Dijk, W. (2019). Morpheme frequency in academic words: Identifying high-utility morphemes for instruction. *Literacy Research and Instruction*, 58(3), 184–209.

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Prefixes

Prefix	Meaning	Example
con	with, joint	conclusion, continuous
in	1) in, on, toward; 2) not	inference, include
re	back, again	reflexive, reciprocal
dis	not, apart, absence of	disprove, distributive
ex	out	exact, exponent
de	away from, down	decrease, deviation
tri	three	triangular, trigonometry
ad	toward, in, near	adjacent, additive
pro	forward, prior to	problems, products
sub	under, below, secondary	subtract, subset
bi	two	bisect, billion
un	not	undivided, unlimited
e	lacking, out	eliminate, evaluate
inter	between	interval, intercept
per	through, completely	percentage, perpendicular
quadr	four	quadrant, quadrilateral
a	on/in, to, not, without	amount, asymptote
multi	many	multiples, multiplier
pre	before, earlier	precision, prediction
trans	beyond, across	transitive, translate

Suffixes

Suffix	Meaning	Example
ment	result of, act of - noun	complement, statement
al	relating to, characterized by - noun, adjective	vertical, symmetrical
ation	act of, state of - noun	estimation, tessellation
ic	of, pertaining to, like - adjective	symmetric, parabolic
ent	referent - noun; adjective	tangent, quotient
ive	causing, making - adjective	relative, transitive
y	state, quality, condition - noun	trigonometry, geometry
ar	of or pertaining to - adjective	triangular, similar
ate	cause, make - verb, adjective	terminate, truncate
ity	state of, quality - noun	variability, quantity
ion	act, state of - noun	union, subtraction
th	forms ordinal numbers - adjective	fiftieth, billionth
teen	ten - numeral	nineteen, fifteen
able	able, can do - adjective	probable, variable
ence	action, state, quality - noun	confidence, recurrence
illion	the power of a million - numeral	trillion, billion
ant	referent - noun; adjective	significant, quadrant
ary	relating to, place where - noun, adjective	imaginary, binary
ly	manner or like - adverb	likely, equally
or	one who, that which - noun	monitor, bisector
ure	state of, process, office, function - noun	measure

Latin Roots

Latin Root	Meaning	Example
vert	to turn	reverse, vertical
fac	to do, to make	significant, factorial
pos	to put, to place, to set, to pose	opposites, composition
lat	to carry, to bear	related, translate
sta	to stand, to set	statistic, statement
equ	equal	equivalent, unequal
centr	center	concentric, central
sect	to cut	intersect, bisect
vid	to see, to separate	undivided, divisible
duc	to lead	reduce, product
plic	to fold	duplicate, multiplication
vari	vary	variation, variable
cur	1) to run, to go; 2) to care, to cultivate	concurrent, currency
form	shape	transform, formula
latus	side	equilateral, dilate
numer	number	numerals, numerator
rect	straight, right	rectangle, direct
ang	angle	triangular, angle
cap	to take, to hold, to receive, to contain	capacity, intercept
circ	round, circle	circuit, circular
dic	to say, to tell	prediction, contradict
estim	to guess	estimation, overestimate
fer	to carry, to yield	difference, inference
grad	step, degree, to go	gradient, degree
jec	to throw, to lie	projection, conjecture
min	small	minimum, minus
nom	name	polynomial, monomial
ple	fill, fulfill	complete, supplementary
sequ	to follow	Sequential, sequence

Greek Roots

Greek Root	Meaning	Example
metr	measure	symmetry, parameter
graph	to write, to draw	centigram, hectogram
gon	angle	pentagon, nonagon
para	beside, position	parabolic, parenthesis
hedr	seat, side	trihedron, polyhedron
syn	together	synthetic, symbolic
poly	many	polygon, polyhedron
dec	ten	decades, decimal
arithm	to number, to count	arithmetic, logarithm
oid	like, having the form of	trapezoid, centroid
bal	throw	hyperbola, parabolic
kilo	thousand	kilometer, kilogram
dia	through, across, between	diameter, diagonal
giga	billion	gigameter, gigaflop
nano	dwarf, very small	nanometer, nanosecond
peri	around, near	perimeter, period
theor	contemplation	theorem, theoretical
geo	earth	geometry, geometric
log	speech, word, reason	logarithm, logic
hect	hundred	hectare, hectogram
hyper	over	hypotenuse, hyperbola
hex	six	hexagon, hexagonal
iso	equal	isosceles, isometry
micro	small, minute	micrometer, micron
odo	path, road	periodical, method
pent	five	pentagon, pentameter
pict	to draw	pictograph, pictorial
semi	half	semicircle
sphere	circle	spheroid, hemisphere
sys	whole body	systematic, subsystem