

# Glossary

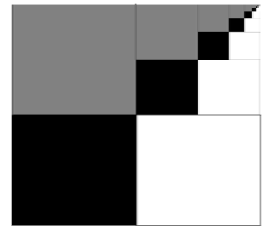
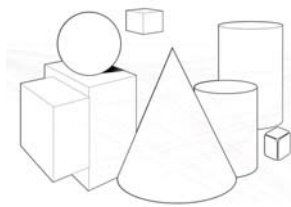
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## High School Level Geometry Glossary

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**English / Swahili**

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Translation of Geometry terms based on the Coursework for Geometry Grades 9 to 12.

Word-for-word glossaries are used for testing accommodations for ELL/LEP students

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THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK / ALBANY, NY 12234

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**P-16**

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## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
<b>Problem Solving</b>	<b>Utatuzi wa Tatizo</b>
AA triangle similarity	Mfanano wa pembetatu AA
AAA triangle similarity	Mfanano wa pembetatu AAA
AAS triangle congruence	Ulinganisho wa pembetatu AAS
additive property of equality	tabia jumlishi ya usawa
algorithm	kanuni
apply	tumia
ASA triangle congruence	ulinganisho wa pembetatu ASA
conjecture	kisio
constraints	kizuizi
construct	unda
discover	vumbua
dynamic geometry software	programu ya jiometri ya elimumwendo
explore	peleleza
generalization	jumuisho
inductive reasoning	mantiki elekevu
justify	halilisha
parameters	kigezo
reason	sababu
truth value	thamani ya ukweli
valid argument	hoja halali
<b>Reasoning and Proof</b>	<b>Mantiki na Ushahidi</b>
AA triangle similarity	Mfanano wa pembetatu AA
AAA triangle similarity	Mfanano wa pembetatu AAA
AAS triangle congruence	Ulinganisho wa pembetatu AAS
analytical proof	ushahidi wa kichambuzi
angle addition postulate	udhanifu wa ongezeko la pembe
ASA triangle congruence	Ulinganisho wa pembetatu ASA
axiom	usemi dhahiri
biconditional	iliyo na masharti mawili
conclusion	hitimisho
conditional statement	kauli ya masharti
conjecture	kisio
conjunction	makisio
contradiction	ukinzani
contrapositive of a statement	mgeuzo chanya wa kauli
converse of a statement	mgeuzo wa kauli
counterexample	mfano jibu
deductive proof	ushahidi tegemezi
deductive reasoning	mantiki tegemezi
definition	fasili
disjunction	mwachano

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
dynamic geometry software	programu ya jiometri ya elimumwendo
equivalence relation	uhusiano wa ulingano
Euclidean Parallel Postulate	Udhanifu Sambamba wa Euklidi
explain	elezea
geometry	jometri
hypotenuse and leg triangle congruence	kiegana na ulinganisho mguu wa pembetatu
hypothesis	nadharia tete
indirect proof	ushahidi usio wa moja kwa moja
inductive reasoning	mantiki elekevu
inverse of a statement	unyume wa kauli
investigate	chunguza
justify	halalisha
logical equivalence	usawa wa mantiki
negation	ukanushaji
paragraph proof	ushahidi wa aya
parallel postulate (s)	udhanifu sambamba
proof	ushahidi
proof by contradiction	ushahidi kwa ukinzani
proportional	-a urari
Pythagorean Theorem	Kanuni za Pythagorasi
reason	sababu
reflexive property of equality	tabia ya usawa ya kujirejelea
SAS triangle congruence	Ulinganisho wa pembetatu SAS
SAS similarity theorem	Kanuni ya mfanano wa SAS
SSS triangle congruence	Ulinganisho wa pembetatu SSS
substitution property	tabia ya ubadilifu
subtraction property of equality	tabia ya kutoa ya usawa
symmetric property of equality	tabia ya ulinganifu ya usawa
theorem	kanuni
transformational proof	ushahidi wa ubadilishaji
transitive property of equality	tabia ya uamilifu ya usawa
truth value	thamani ya ukweli
two-column proof	ushahidi wa safu mbili
undefined terms	sehemu zisizotambuliwa
union of sets	muunganiko wa seti
valid argument	hoja halali
Communication	Mawasiliano
axiom	usemi dhahiri
bi-conditional	iliyo na masharti mawili
compound statement	kauli ambatani
conclusion	hitimisho
conjecture	kisio
conjunction	kiunganishi

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
contrapositive of a statement	mgeuzo chanya wa kauli
definition	fasili
disjunction	mwachano
explain	elezea
hypothesis	nadharia tete
Inverse of a statement	unyume wa kauli
justify	halalisha
negation	ukanushaji
theorem	kanuni
truth value	thamani ya ukweli
undefined terms	sehemu zisizotambuliwa
Connections	Uhusiano
apply	tumia
compound locus	mchirizo ambatani
discover	vumbua
intersection of sets	makutano ya seti
investigate	chunguza
spatial relationships	mahusiano ya kishemu
union of sets	muunganiko wa seti
Representation	Uwakilishi
analytical geometry	jiometri chambuzi
coordinate geometry	jiometri unganishi
definition	fasili
Euclidean geometry	jiometri ya Euklidi
function	namba tegemezi
graphical representation	uwakilishaji wa grafu
locus of points	mchirizo wa nukta
logical equivalence	usawa mantiki
non-Euclidean geometry	jiometri isiyo ya Euklidi
three dimensional space	eneo la pande tatu
transformational geometry	jiometri ya ubadilishaji
two dimensional space	eneo la pande mbili
Geometric Relationships	Uhusiano wa Kijiometri
AA triangle similarity	Mfanano wa pembetatu AA
AAA triangle similarity	Mfanano wa pembetatu AAA
AAS triangle congruence	Ulinganisho wa pembetatu AAS
ASA triangle congruence	Ulinganisho wa pembetatu ASA
absolute value	thamani kamili
acute angle	pembe kali
acute triangle	pembetatu kali
adjacent angles	pembe mkabala

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
algebraic representation	uwakilishi wa kialgebra
alternate interior angles	pembe za ndani mbadala
altitude	kimo
analytical geometry	jiometri ya uchambuzi
angle	pembe
angle bisector	kigawakati cha pembe
angle measure	kipimo cha pembe
apothem	apothemu
arc	tao
arc measure	kipimo cha tao
area	eneo
axis of symmetry	mhimili wa ulinganifu
base	kizio
betweenness	ukatikati
bisector	kigawakati
center of a circle	kitovu ch duara
center of a regular polygon	kitovu cha poligoni ya kawaida
center of gravity	kitovu cha mvutano
central angle	pembe ya kati
central angle of a regular polygon	pembe ya kati ya poligoni ya kawaida
centroid	kitovu
chord	uzi
circle	duara
circumcenter	katikati ya mduara
circumcircle (about a polygon)	katikati ya mduara (katika poligoni)
circumference	mzingo
collinear points	pointi zilizo katika mstari nyoofu
common tangents	mistari miguso ya kawaida
complementary angles	pembe za kikorokoro
concave polygon	poligoni mbonyeo
concentric circles	duara za kati moja
concurrent lines	mistari ambatani
cone	koni
congruence	ulinganifu
conic sections	sehemu za koni
constant of proportionality	kutobadilika kwa urari
convex polygon	poligoni mbinuko
coordinate geometry	jiometri unganishi
coplanar	kwa ubapa mmoja
corresponding angles	pembe linganifu
corresponding parts	sehemu linganifu
corresponding side	pande linganifu
cross-section	sehemu ya mkato

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
cube	mche mraba
cylinder	silinda
definition	fasili
diagonal	hanamu
diameter	kipenyo
dihedral angle	pembe kati ya bapa mbili
distance	umbali
distance between a point and a line	umbali kati ya nukta na mstari
distance between two parallel lines	umbali kati ya mistari miwili sambamba
distance between two points	umbali kati ya nukta mbili
dodecahedron	polihedroni ya nyuso kumi na mbili
ellipse	duaradufu
endpoint	kituo cha mwisho
equiangular	iliyo na pembe za ndani sawa
equidistant	umbali sawa
equilateral triangle	pembe tatu sawa
equilateral polygon	poligoni sawa
Euclidean Geometry	jiometri ya Euklidini
Euclidean Parallel Postulate	udhanifu sambamba wa euklidi
exterior	-a nje
exterior angle	pembe ya nje
external secant segment	sehemu ya nje ya mstari kati
face of a polyhedron	uso wa polihedroni
foot of an altitude	mguu wa kimo
function	namba tegemezi
geometric mean	wastani wa jiometri
geometry	jiometri
golden ratio	uwiano wa dhahabu
golden rectangle	mstatili wa dhahabu
great circle	duara kuu
hemisphere	nusu dunia
Heron's formula	fomyula ya Heroni
hexagon	pembe sita
hypotenuse	kiegana
icosahedron	polihedroni ya pande ishirini
in center of a polygon	katika katikati ya poligoni
inclination	ubetuzi
inscribed angle	pembe ya kunakiliwa
inscribed circle	duara ya kunakiliwa
intercepted arc	tao lililodukuliwa
intercepts	makutano
interior	ndani
intersecting lines	mistari ya mkato

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
isosceles trapezoid	pembepacha msambamba tenge
isosceles triangle	pembetatu pacha
kite	tiara
lateral area of a prism	eneo pande la mche
lateral edge	ukingo wa eneo pande
lateral face	uso wa eneo pande
lateral surface	uso wa eneo pande
legs of a right triangle	miguu ya pembetatu sawa
legs of a isosceles trapezoid	miguu ya pembepacha msambamba
length	urefu
line	mstari
line segment	sehemu ya mstari
linear pair	jozi ya kimstari
locus of points	mchirizo nukta
major arc	tao kuu
mean proportional	wastani wa urari
measure of an angle	kipimo cha pembe
measure of an arc	kipimo cha tao
median of a trapezoid	wastani wa msambamba tenge
median of a triangle	wastani wa pembetatu
midpoint	nuktakati
mid-segment	mstarikati
minor arc	tao ndogo
n-gon	goni ya n
non-collinear	isiyo katika mstari nyoofu
non-coplanar	isiyo kwa ubapa mmoja
non-Euclidean geometry	jiometri isiyo ya Euklidi
obtuse angle	pembe butu
obtuse triangle	pembetatu butu
octagon	pembe nane
octahedron	umbo la ya nyuso nane
opposite rays	miale mkabala
orthocenter	katikati sahihi
orthogonal	ihusianayo na pembemraba
parabola	parabola
parallel line segments	vipande vya mstari sambamba
parallel lines	mistari sambamba
parallelepiped	mchirizi sambamba
parallelogram	msambamba
pentagon	pembetano
perimeter	mzingo
perpendicular bisector	kigawakati pembemraba
perpendicular bisector concurrence	uambatano wa kigawakati pembemraba



## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
perpendicular lines	mistari ya pembemraba
perpendicular planes	bapa za pembemraba
pi	pai
plane	ubapa
point	nukta
point of concurrency	nukta ya uambatani
point of tangency	nukta ya mstari mguso
polygon	poligoni
polyhedron	polihedroni
prism	mche
product property of proportions	tabia zao ya urari
proportional	-a urari
pyramid	piramidi
Pythagorean Theorem	kanuni ya kipaithegorasi
quadrant	roboduara
quadratic equation	hesabu ya kipawa cha pili
quadratic formula	fomyula ya kipawa cha pili
quadrilateral	pembenne
radius	nusukipenyo
ratio	uwiano
ray	mwale
real numbers	namba halisi
rectangle	mstatili
rectangular solid	mstatili yabisi
regular polygon	poligoni ya kawaida
remote interior angles	pembe za ndani za mbali
rhombus	msambamba sawa
right angle	pembemraba
right triangle	pembetatu mraba
scalene triangle	pembetatu mshazari
secant	mstari kata
segment	kipande cha mstari
segment of a circle	kipande cha duara
semicircle	nusuduara
set	seti
similar polygons	poligoni pacha
similar triangles	pembetatu sawa
simple quadrilateral	pembenne rahisi
skew lines	mistari tengano
slant height	kimo hanamu
slope	mwinamo
sphere	tufe
square	mraba

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
supplementary angles	pembe nyongeza
surface area	eneo nzima
tangent segment	sehemu ya mstari mguso
tangent to a circle	mstari mguso kwa duara
tessellation	kuweka kigae
tetrahedron	tetrahedroni
three-dimensional space	nafasi ya pande tatu
topology	topolojia
transformational geometry	jiometri ya ubadilishaji
transversal	-a kukingama
trapezoid	msambamba tenge
triangle	pembetatu
triangle inequality	pembetatu pogo
trigonometry of the right triangle	hesabu za maumbo za pembe tatu mraba
two-dimensional space	nafasi ya pande mbili
vector	mchukuzi
vertex	kipeo
vertical angles	pembewima
vertical line	mstari wima
volume	ujazo
x-axis	jira x
x-intercept	makutano ya x
y-axis	jira y
y-intercept	makutano ya y
z-axis	jira z
Constructions	Ujenzi
angle bisector	kigawakati cha pembe
bisector	kigawakati
center of a regular polygon	katikati ya poligoni ya kawaida
center of gravity	katikati ya mvutano
circumcircle (about a polygon)	katikati ya mduara (katika poligoni)
compass	dira
construct	jenga
dynamic geometry software	programu ya jiometri ya elimumwendo
perpendicular bisector	kigawakati pembemraba
perpendicular bisector concurrence	uambatano wa kigawakati pembemraba
perpendicular lines	mistari ya pembemraba
straightedge	ukingo nyofu
Locus	Mchirizo
circle	duara
compound locus	mchirizo ambatani
ellipse	duaradufu

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
hyperbola	haipabola
locus of points	mchirizo wa nukta
parabola	parabola
Formal and Informal Proofs	Ushahidi Rasmi na wa Kawaida
AA triangle similarity	Mfanano wa pembetatu AA
AAA triangle similarity	Mfanano wa pembetatu AAA
AAS triangle congruence	Ulinganisho wa pembetatu AAS
ASA triangle congruence	Ulinganisho wa pembetatu ASA
angle addition postulate	udhanifu wa ongezeko la pembe
axiom	usemi dhahiri
bi-conditional	iliyo na masharti mawili
conclusion	hitimisho
conditional statement	kauli ya masharti
conjecture	kisio
conjunction	makisio
contradiction	ukinzani
contrapositive of a statement	mgeuzo chanya wa kauli
converse of a statement	mgeuzo wa kauli
counterexample	mfano jibu
deductive reasoning	mantiki tegemezi
definition	fasili
disjunction	mwachano
dynamic geometry software	programu ya jiometri ya elimumwendo
equivalence relation	uhusiano wa ulingano
Euclidean Parallel Postulate	udhanifu sambamba wa euklidi
hypotenuse and leg triangle congruence	kiegana na ulinganisho mguu wa pembetatu
indirect proof	ushahidi usio wa moja kwa moja
inductive reasoning	mantiki elekevu
inverse of a statement	unyume wa kauli
justify	halalisha
logical equivalent	mantiki sawa
negation	ukanushaji
parallel postulate (s)	udhanifu sambamba
postulate	udhanifu
proof	ushahidi
proof by contradiction	ushahidi kwa ukinzani
Pythagorean Theorem	Kanuni za Pythagorasi
reason	sababu
reflexive property of equality	tabia ya usawa ya kujirejelea
SAS triangle congruence	Ulinganisho wa pembetatu SAS
SAS similarity Theorem	Kanuni ya usawa ya SAS
SSS triangle congruence	Ulinganisho wa pembetatu SSS
substitution property	tabia ya ubadilifu

## GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL

ENGLISH	SWAHILI
subtraction property of equality	tabia ya kutoa ya usawa
symmetric property of equality	tabia ya ulinganifu ya usawa
theorem	kanuni
transitive property of equality	tabia ya ubadilishaji ya usawa
transformational proof	ushahidi wa ubadilishaji
truth value	thamani ya ukweli
two-column proof	ushahidi wa safu mbili
undefined terms	sehemu zisizotambuliwa
union of sets	muungano wa seti
valid argument	hoja halali
<b>Transformational Geometry</b>	<b>Jiometri Geuzi</b>
axis of symmetry	kipimo cha ulinganifu
center of a dilation	kitovu cha mtanuko
center of a rotation	kitovu cha mzunguko
clockwise (orientation)	kuelekea kulia (mwelekeo)
composition	utungaji
constant of proportionality	kutobadilika kwa urari
contraction	mkazo
counterclockwise (orientation)	kuelekea kushoto (mwelekeo)
dilation	mtanuko
direct transformation	ubadilishaji wa moja kwa moja
domain	kikoa
dynamic geometry software	programu ya jiometri ya elimumwendo
fixed point	nukta funge
function	namba tegemezi
function notation for transformations	nukuu ya namba tegemezi kwa ubadilishaji
glide reflection	uakisi wa kunyiririka
group	kundi
half-turn	nusu mzunguko
identity	utambulisho
image	twasira
inverse of a transformation	unyume wa ubadilishaji
isometric	isometriki
mapping (function)	uchoraji (namba tegemezi)
opposite transformation	ubadilishaji mkabala
orientation	mwelekeo
pre-image	tawasira ya awali
reflection	uakisi
rotation	mzunguko
rotational symmetry	mzunguko linganifu
symmetry	linganifu
tessellation	kuweka kigae
transformation	Ubadilishaji/ugeuzi

**GEOMETRY GLOSSARY - HIGH SCHOOL LEVEL**

<b>ENGLISH</b>	<b>SWAHILI</b>
transformational geometry	jometri geuzi
translation	tafsiri
transformational geometry	jometri geuzi
translation	tafsiri
<b>Coordinate Geometry</b>	<b>Jiometri Uganishi</b>
abscissa	jozi ratibu
analytical geometry	jometri chambuzi
analytical proof	ushahidi wa kichambuzi
Cartesian coordinates	viambatanishi vya Kartesi
Cartesian plane	ubapa wa Kartesi
center-radius equation of circle	mlinganyo wa kitovu cha nusukipenyo cha duara
coordinate	unganisha
coordinate geometry	jiometri unganishi
coordinate plane	ubapa wa kiambatanishi
distance between two points	umbali kati ya nukta mbili
origin	asili
point slope equation of a line	mlinganyo wa pointi ya mwinamo wa mstari
rectangular coordinates	viambatanishi vya mstatili
slope - intercept equation of a line	mlinganyo wa makutano ya mwinamo wa mstari
three-dimensional space	eneo la pande tatu
two-dimensional space	eneo la pande mbili
vector	mchukuzi
x-axis	jira x
x-intercept	makutano ya x
y-axis	jira y
y-intercept	makutano ya y
z-axis	jira z

## NYS Grades 9 – 12 Math Terms Addenda

Common Core Math Standard	ENGLISH	SWAHILI
N-RN.B.3	non-zero rational number	namba uwiano isiyo na sifuri
A-SSE.A.1	difference of squares, example: $(a^2 - b^2)$	tofauti ya miraba, mfano: $(a^2 - b^2)$
A-SSE.A.1	square of a difference, example: $(a - b)^2$	mraba wa tofauti, mfano: $(a - b)^2$
A-SSE.B.3	equivalent monthly interest rate	kiwango sawa cha riba ya kila mwezi
A-CED.A.1	exponential equation	mlinganyo wa kipeo
A-CED.A.3	non-viable options (inequalities)	njia mbadala zisizo na uhalisia (milinganyo isiyo sawa)
A-CED.A.3	viable options (inequalities)	njia mbadala zenye uhalisia (milinganyo isiyo sawa)
A-REI.A.1	viable argument	hoja yenye uhalisia
A-REI.D.12	half-plane	nusu bapa
A-REI.D.11	logarithm function	namba tegemezi ya logi
F-IF.C.8	piece-wise defined function	mlinganyo nusu wa namba tegemezi uliofasiwa
F-IF.C.8	step function	namba tegemezi ya hatua
F-IF.C.8	absolute-value function	namba tegemezi ya thamani kamili
F-BF.A.1	recursive process	mchakato wa kujirudia
F-Bf.B.3	even function	namba tegemezi shufwa
F-BF.B.3	odd function	namba tegemezi witiri
F-LE.A.1	constant percent rate	kiwango cha kudumu cha asilimia
S-ID.B.5	categorical data	data ainifu
S-ID.B.5	joint frequency	idadi ya kijirudia unganifu
S-ID.B.5	marginal frequency	idadi ya kujirudia halisi
S-ID.B.5	conditional relative frequency	idadi ya kujirudia ya mahusiano ya masharti
S-ID.B.6	fit of a function	kufaa kwa namba tegemezi
S-ID.B.6	residuals	mabaki
S-ID.C.8	correlation coefficient	kijenzi cha uwiano
S-ID.C.8	linear fit	kufaa kulikonyooka
S-ID.C.9	correlation and causation	uhusiano na sababu
S-ID.C8	linearity	unyofu
S-ID.C8	linear phenomenon	matukio ya kimsitari
N-Q.A.3	data point	nukta ya data
N.C.N.4	complex plane	ubapa changamani
N.C.N.5	conjugation of complex numbers	mnyambuliko wa namba changamani
N-V.M.6	incidence relationship (payoff)	uhusiano wa tukio (faida)
N-Q.A.2	descriptive modeling	uundaji wa kimaelezo
S-REI.A.2	algebraic manipulation	matumizi ya kialjebra

### KEYS

N-Q = Number & Quantity

SSE = Seeing Structures in Expressions

RN = Real Number System

BF = Building Functions

ID = Interpreting categorical and quantitative Data

CED = Creating Equations Describing numbers or relationships

REI = Reasoning with Equations & Inequality

VM = Vectors & Matrix quantities

IF = Interpreting Functions

ID = Interpreting categorical and quantitative Data

APR = Arithmetic with Polynomials & Relational expressions