PA Core Standards For Mathematics
Curriculum Framework
Geometry

Grade	Big Idea	Essential Questions	Concepts	Competencies	Standard	Eligible Content	Vocabulary
GEO	Patterns exhibit relationships that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	How can patterns be used to describe relationships in mathematical situations? How can recognizing repetition or regularity assist in solving problems more efficiently? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model, and analyze situations?	Congruence and Similarity	Use properties of congruence, correspondence, and similarity involving 2- and 3-dimensional figures. Apply rigid transformations to determine and explain congruence. Apply non-rigid transformations to determine and explain similarity. Using various methods, write formal proofs and/or use logic statements to construct or validate arguments. Make geometric constructions. Prove geometric theorems about lines, angles, triangles, and parallelograms while focusing on validity of underlying reasoning.	CC.2.3.HS.A.1 CC.2.3.HS.A.2 CC.2.3.HS.A.3 CC.2.3.HS.A.4 CC.2.3.HS.A.5 CC.2.3.HS.A.6 CC.2.3.HS.A.11	G.1.3.1.1 G.1.3.1.2 G.1.3.2.1	Acute Angle Adjacent Angles Alternate Interior Angles Altitude Angle Angle Bisector Arc Arc Length Area Chord Circle Circumference Complementary Angles Composite Figure Compound Events Compound Figure Conditional Probability Congruence Correspondence Corresponding Angles Cylinder (Right Circular) Diameter Direct Proof Equilateral Triangle Independence Indirect Proof Isosceles Triangle Line Median Midpoint Non-rigid Transformation Obtuse Angle Parallel Parallelogram Perimeter Perpendicular

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							Point Polyhedra Proof Proof by Contradiction Pyramid (Right) Pythagorean Identity Pythagorean Theorem Radius Ray Rectangle Regular Polygon Rhombus Right Triangle Rigid Transformation Scalene Triangle Secant Sector Segment Semicircle Similarity Slope Sphere Square Supplementary Angles Surface Area Tangent Three-Dimensional Trapezoid Trigonometric Ratios Two-Dimensional Vertical Angles Volume
GEO	Patterns exhibit relationships that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and	How can patterns be used to describe relationships in mathematical situations? How can recognizing repetition or regularity assist in solving problems	Trigonometry	Define and/or apply trigonometric ratios. Solve problems involving right triangles (Pythagorean Theorem, right triangle	CC.2.3.HS.A.7 CC.2.2.HS.C.9	G.2.1.1.1 G.2.1.1.2 G.1.3.2.1	

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	classified based on spatial reasoning and/or visualization.	more efficiently? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model, and analyze situations?		trigonometry).			
GEO	Patterns exhibit relationships that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	How can patterns be used to describe relationships in mathematical situations? How can recognizing repetition or regularity assist in solving problems more efficiently? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model,	Circles	Identify, determine, and/or use parts of circles and segments, lines, and angles associated with circles. Extend the concept of similarity to determine arc lengths and areas of sectors. Understand and apply theorems about circles.	CC.2.3.HS.A.3 CC.2.3.HS.A.8 CC.2.3.HS.A.9	G.1.1.1.1 G.1.1.1.2 G.1.1.1.3 G.2.2.2.1 G.2.2.2.2 G.2.2.2.5	

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		and analyze situations?					
GEO	Patterns exhibit relationships that can be extended, described, and generalized. Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	How can patterns be used to describe relationships in mathematical situations? How can recognizing repetition or regularity assist in solving problems more efficiently? How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving? How can geometric properties and theorems be used to describe, model, and analyze situations?	Analytic Geometry	Use coordinate geometry to prove theorems algebraically. Use coordinate geometry to establish properties of 2-dimensional shapes. Apply coordinate geometry to calculate distance and/or midpoint between two points. Apply coordinate geometry to relate slope to parallel and perpendicular lines.	CC.2.3.HS.A.10 CC.2.3.HS.A.11	G.2.1.2.1 G.2.1.2.2 G.2.1.2.3	
GEO	Geometric relationships can be described, analyzed, and classified based on spatial reasoning and/or visualization.	How are spatial relationships, including shape and dimension, used to draw, construct, model, and represent real situations or solve problems? How can the application of the attributes of geometric shapes support mathematical reasoning and problem solving?	Measurement and Dimension	Use and/or compare measurements of angles. Use and/or develop procedures to determine, describe, or estimate measures of perimeter, circumference, area, surface area, and/or volume. Describe how a change in the linear dimension can affect perimeter, circumference, area, surface area, and/or volume. Visualize the relation between	CC.2.3.HS.A.3 CC.2.3.HS.A.8 CC.2.3.HS.A.9 CC.2.3.HS.A.12 CC.2.3.HS.A.13 CC.2.3.HS.A.14	G.2.2.1.1 G.2.2.1.2 G.2.2.2.1 G.2.2.2.2 G.2.2.2.3 G.2.2.2.4 G.2.2.2.5 G.2.2.3.1 G2.3.1.1 G2.3.1.2 G2.3.1.3 G2.3.2.1	

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				two-and three-dimensional objects. Apply geometric concepts in modeling situations.			