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(4) These standards are meant to provide clarity and specificity in regards to the content covered in the high school geometry course. These standards are not meant to lim to convey this knowledge to students. Though the standards are written in a particular order, they are not necessarily meant to be taught in the given order. In the standards problems" includes both contextual and non-contextual problems unless specifically stated.

(5) Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative e

(c) Knowledge and Skills.

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(A) apply mathematics to problems arising in everyday life, society, and the workplace	(i) apply mathematics to problems arising in everyday life
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(A) apply mathematics to problems arising in everyday life, society, and the workplace	(ii) apply mathematics to problems arising in society

Knowledge and Skills Statement	Student Expectation

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems	(ii) select tools, including manipulatives as appropriate, to solve problems
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems	(iii) select tools, including paper and pencil as appropriate, to solve problems

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(C) select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense6echn(nes)5(()5(ec12ms)0(t)8s7(ec)0b0 1(t)1 scn 25g2 ed0j38.196 38.0.960 cs 0 scn /TT5 mathematical processes to acquire antudent uses mathematical understanding. The student is expeced to:	(C) select tools, including real objects, manipulatives, paper and pencil, and tec38.v .2(y)29.4( )0.5(as)

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(iv) communicate mathematical ideas using multiple representations, including language as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(v) communicate mathematical reasoning using multiple representations, including symbols as appropriate

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(vi) communicate mathematical reasoning using multiple representations, including diagrams as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(vii) communicate mathematical reasoning using multiple representations, including graphs as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(viii) communicate mathematical reasoning using multiple representations, including language as appropriate

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xi) communicate [mathematical ideas'] implications using multiple representations, including graphs as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xii) communicate [mathematical ideas'] implications using multiple representations, including language as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xiii) communicate [mathematical reasoning's] implications using multiple representations, including symbols as appropriate

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xiv) communicate [mathematical reasoning's] implications using multiple representations, including diagrams as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xv) communicate [mathematical reasoning's] implications using multiple representations, including graphs as appropriate

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(D) communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate	(xvi) communicate [mathematical reasoning's] implications using multiple representations, including language as appropriate
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(i) create representations to organize mathematical ideas
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(ii) create representations to record mathematical ideas

Knowledge and Skills Statement	Student Expectation	Breakout
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(iii) create representations to communicate mathematical ideas
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(iv) use representations to organize mathematical ideas
(1) Mathematical process standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. The student is expected to:	(E) create and use representations to organize, record, and communicate mathematical ideas	(v) use representations to record mathematical ideas

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Knowledge and Skills Statement	Student Expectation	Breakout
(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:	(A) describe and perform transformations of figures in a plane using coordinate notation	(i) describe transformations of figures in a plane using coordinate notation
(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:	(A) describe and perform transformations of figures in a plane using coordinate notation	(ii) perform transformations of figures in a plane using coordinate notation

Knowledge and Skills Statement	Student Expectation	Breakout
(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:	(C) identify the sequence of transformations that willl	

Knowledge and Skills Statement	Student Expectation	Breakout
(3) Coordinate and transformational geometry. The student uses the process skills to generate and describe rigid transformations (translation, reflection, and rotation) and non-rigid transformations (dilations that preserve similarity and reductions and enlargements that do not preserve similarity). The student is expected to:	(D) identify and distinguish between reflectional and rotational symmetry in a plane figure	(iii) distinguish between reflectional and rotational symmetry in a plane figure
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(A) distinguish between undefined terms, definitions, postulates, conjectures, and theorems	(i) distinguish between undefined terms, definitions, postulates, conjectures, and theorems
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(i) identify the validity of the converse of a conditional statement

Knowledge and Skills Statement	Student Expectation	Breakout
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(ii) identify the validity of the inverse of a conditional statement
(4) Logical argument and conal process skiltith deductive reasoning to understand geometric relationsps. The student is expected to:	6EMC /P <</MCID 22 >>BDC 24.identify and determine the validity529.4( )0.5(6w)31.8( )0.5(t)2.5(he)]TJ 0 -1.232 T conditional st8 35(at)2.6(em)20.9(ent)2.5( )0.5(w)31.9(i)7.5(i)7.5(t)2.5pe(t)-8.7(ed t)6ue converse(iionditw the	

Knowledge and Skills Statement	Student Expectation	Breakout
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(iv) determine the validity of the converse of a conditional statement
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(v) determine the validity of the inverse of a conditional statement

Knowledge and Skills Statement	Student Expectation	Breakout
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(vi) determine the validity of the contrapositive of a conditional statement
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(B) identify and determine the validity of the converse, inverse, and contrapositive of a conditional statement and recognize the connection between a biconditional statement and a true conditional statement with a true converse	(vii) recognize the connection between a biconditional statement and a true conditional statement with a true converse
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(C) verify that a conjecture is false using a counterexample	(i) verify that a conjecture is false using a counterexample

Knowledge and Skills Statement	Student Expectation	Breakout
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle	(i) compare geometric relationships between Euclidean and spherical geometries, including parallel lines
(4) Logical argument and constructions. The student uses the process skills with deductive reasoning to understand geometric relationships. The student is expected to:	(D) compare geometric relationships between Euclidean and spherical geometries, including parallel lines and the sum of the angles in a triangle	(ii) compare geometric relationships between Euclidean and spherical geometries, including the sum of the angles in a triangle

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments	

Chapter 111. Mathematics

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses		

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(A) investigate patterns to make conjectures about geometric relationships, including angles formed by parallel lines cut by a transversal, criteria required for triangle congruence, special segments of triangles, diagonals of quadrilaterals, interior and exterior angles of polygons, and special segments and angles of circles choosing from a variety of tools	(viii) investigate patterns to make conjectures about angles of circles choosing from a variety of tools
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge	(i) construct congruent segments using a compass and a straightedge

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge	(ii) construct congruent angles using a compass and a straightedge
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(B) construct congruent segments, congruent angles, a segment bisector, an angle bisector, perpendicular lines, the perpendicular bisector of a line segment, and a line parallel to a given line through a point not on a line using a compass and a straightedge	(iii) construct a segment bisector using a compass and a straightedge

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships	(i) use the constructions of congruent segments to make conjectures about geometric relationships
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships	(ii) use the constructions of congruent angles to make conjectures about geometric relationships
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships	(iii) use the constructions of angle bisectors to make conjectures about geometric relationships

Knowledge and Skills Statement	Student Expectation	Breakout
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(C) use the constructions of congruent segments, congruent angles, angle bisectors, and perpendicular bisectors to make conjectures about geometric relationships	(iv) use the constructions of perpendicular bisectors to make conjectures about geometric relationships
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems	(i) verify the Triangle Inequality theorem using constructions
(5) Logical argument and constructions. The student uses constructions to validate conjectures about geometric figures. The student is expected to:	(D) verify the Triangle Inequality theorem using constructions and apply the theorem to solve problems	(ii) apply the theorem to solve problem

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(A) verify theorems about angles formed by the intersection of lines and line segments, including vertical angles, and angles formed by parallel lines cut by a transversal and prove equidistance between the endpoints of a segment and points on its perpendicular bisector and apply these relationships to solve problems	(i) verify theorems about angles formed by the intersection of liness0.5(i)7.55(v)5(er)8.8(i)65et CremKemo sE by using a variety o9.7(e(et)-8.8(hods)-9.7(s)-9.6(uc)-9.7(h as

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions	(ii) prove two triangles are congruent by applying the Angle-Side-Angle congruence condition
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions	(iii) prove two triangles are congruent by applying the Side-Side-Side congruence condition
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions	(iv) pronditions

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(B) prove two triangles are congruent by applying the Side-Angle-Side, Angle-Side-Angle, Side-Side-Side, Angle-Angle-Side, and Hypotenuse-Leg congruence conditions	(v) prove two triangles are congruent by applying the Hypotenuse-Leg congruence condition
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles	(i) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles	(ii) apply the definition of congruence, in terms of rigid transformations, to identify [congruent figures'] corresponding sides

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(C) apply the definition of congruence, in terms of rigid transformations, to identify congruent figures and their corresponding sides and angles	(iii) apply the definition of congruence, in terms of rigid transformations, to identify [congruent figures'] corresponding angles
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems	(i) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem

Knowledge and Skills Statement	Student Expectation	Breakout

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these theorems to solve problems	(iv) verify theorems about the relationships in triangles, including of the midsegments
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of by using a variety of ments, o-	

Knowledge and Skills Statement	Student Expectation	Breakout
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(D) verify theorems about the relationships in triangles, including proof of the Pythagorean Theorem, the sum of interior angles, base angles of isosceles triangles, midsegments, and medians, and apply these relationships to solve problems	(vi) apply these relationships to solve problems
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems	(i) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals
(6) Proof and congruence. The student uses the process skills with deductive reasoning to prove and apply theorems by using a variety of methods such as coordinate, transformational, and axiomatic and formats such as two-column, paragraph, and flow chart. The student is expected to:	(E) prove a quadrilateral is a parallelogram, rectangle, square, or rhombus using opposite sides, opposite angles, or diagonals and apply these relationships to solve problems	(ii) apply these relationships to solve problems