

Grade 7 Math C1 TF

<p><b>Claim 1:</b> Concepts and Procedures Students can explain and apply mathematical concepts and carry out mathematical procedures with precision and fluency.</p>	
<p>Content Domain: <b>Geometry</b></p>	
<p><b>Target F [a]:</b> Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. (DOK 1, 2)</p> <p>Tasks for this target will require students to solve problems for circumference, area, volume, and surface area of two and three dimensional objects.</p> <p>Other tasks (paired with 7.EE Target D) will require students to write and solve equations to determine an unknown angle in a figure.</p>	
Standards:	7G.4, 7.G.5, 7.G.6
DOK Target(s):	1, 2
Evidence Required:	<p>1. The student solves real-life and mathematical problems involving angle measure including problems requiring writing and solving equations.</p> <p>2. The student solves real-life and mathematical problems for the circumference and area of circles.</p> <p>3. The student solves real-life and mathematical problems for the area of two-dimensional objects composed of polygons.</p> <p>4. The student solves real-life and mathematical problems for the volume and surface area of three-dimensional objects composed of right prisms and cubes.</p>
Allowable Item Types*:	SR, CR, TE
Task Models:	<p>1. SR (DOK 1, 2) <b>Prompt Features:</b> The student is prompted to identify supplementary, complementary, vertical, and/or adjacent angles in a figure. Or the student is prompted to identify a missing angle measure in a figure involving supplementary, complementary, vertical, and/or adjacent angles. Or the student is prompted to identify an equation or expression that represents a relationship between supplementary, complementary, vertical, and/or adjacent angles in a figure. Or the student is prompted to identify the solution to a multi-step problem involving supplementary, complementary, vertical, and/or adjacent angles in a figure. <b>Stimulus:</b> The student is presented with a figure that shows supplementary, complementary, vertical, and/or adjacent angles. The measures of certain angles in the figure may be shown. Relationships specified as “key nontargeted constructs” must be explicitly given.</p> <p>1. CR (DOK 2) <b>Prompt Features:</b> The student is prompted to write and solve an equation for an unknown angle in a figure involving supplementary, complementary, vertical, and/or adjacent</p>

	<p>angles.</p> <p><b>Stimulus:</b> The student is presented with a figure involving supplementary, complementary, vertical, and/or adjacent angles. Relationships specified as “key nontargeted constructs” must be explicitly given.</p> <p>2. SR (DOK 1)</p> <p><b>Prompt Features:</b> The student is prompted to identify the area or circumference of circles for both real-life and mathematical problems. Or the student is prompted to identify the radius or diameter of circles for both real-life and mathematical problems. Or the student is prompted to identify a fractional part of the area or circumference of a circle for both real-life and mathematical problems.</p> <p><b>Stimulus 1:</b> The student is presented with the radius or diameter of a circle in a real-life or mathematical context.</p> <p><b>Stimulus 2:</b> The student is presented with the circumference or area of a circle in a real-life or mathematical context.</p> <p><b>Stimulus 3:</b> The student is presented with figures composed of two or more circles.</p> <p>3. SR (DOK 1, 2)</p> <p><b>Prompt Features:</b> The student is prompted to identify the area of two-dimensional figures composed of triangles, quadrilaterals, and/or other polygons for both real-life and mathematical problems.</p> <p><b>Stimulus:</b> The student is presented with a real-life or mathematical problem involving a figure composed of two or three triangles, quadrilaterals, and/or other polygons.</p> <p>3. CR (DOK 2)</p> <p><b>Prompt Features:</b> The student is prompted to determine the area of two-dimensional figures composed of triangles, quadrilaterals, and/or other polygons for both real-life and mathematical problems and provide the steps used to find the area.</p> <p><b>Stimulus:</b> The student is presented with a real-life or mathematical problem involving a figure composed of three to five triangles, quadrilaterals, and/or other polygons.</p> <p>4. SR (DOK 1, 2)</p> <p><b>Prompt Features:</b> The student is prompted to identify the surface area or volume of three-dimensional objects.</p> <p><b>Stimulus:</b> The student is presented with three-dimensional objects composed of cubes and right prisms.</p> <p>4. TE (DOK 2)</p> <p><b>Prompt Features:</b> The student is prompted to create a three-dimensional object with a given volume and/or surface area.</p> <p><b>Stimulus:</b> The student is presented with cubes or right prisms with dimensions.</p>
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	<b>Interaction:</b> The student uses the drag-and-drop functionality to create a three-dimensional figure. The functionality should allow for cloning the cubes or right prisms. Only one shape can be used in a problem.
Allowable Stimulus Materials:	
Allowable Disciplinary Vocabulary:	area, circumference, pi, circle, radius, diameter, supplementary angles, complementary angles, vertical angles, adjacent angles, linear pairs of angles, volume, surface area, triangles, quadrilateral, square, rectangle, parallelogram, trapezoid, cubes, right prisms
Allowable Tools:	
Target-Specific Attributes:	Equations are limited to the forms $px + q = r$ or $p(x + q) = r$ , where $p$ , $q$ , and $r$ are rational numbers.
Key Nontargeted Constructs:	area or arc lengths of circles given angle measures; the relationships of angles formed by parallel lines cut by a transversal (8.G.5); the sum of the interior angles of a triangle is $180^\circ$ (8.G.5)
Accessibility Concerns:	Students with challenges in fine motor skills may have difficulty with TE items.
Sample Items:	MAT.07.CR.1.0000G.F.488, MAT.07.TE.1.0000G.F.286

\*SR = selected response item; CR = constructed response item; TE = technology-enhanced item; ER = extended-response item; PT = performance task