

## Formulas, Measurement Conversions, and Angles

Delaware will implement the guidelines for Smarter Assessment without modification. The items and related statistics that are used for Smarter Mathematics and ELA/Literacy are being shared across Consortium member states.

Conversions or formulas that are allowable with a particular item type will be given either in the item stem or in the stimulus for a performance task (PT).

### **Formulas:**

<p><b>List A</b> – Formulas NOT included for any item type at any grade level in either the Smarter interim or summative assessments</p> <ul style="list-style-type: none"> <li>• Perimeter or area of a rectangle</li> <li>• Perimeter or area of a parallelogram</li> <li>• Perimeter or area of a trapezoid</li> <li>• Perimeter or area of a square</li> <li>• Perimeter or area of a triangle</li> <li>• Circumference or area of a circle</li> <li>• Arc length</li> <li>• Area of a sector of a circle</li> <li>• Sum of interior angles of a polygon</li> <li>• Measure of one interior angle of a regular polygon</li> <li>• Surface area of a rectangular prism</li> <li>• Surface area of a cube</li> <li>• Surface area of right pyramids with a rectangular or triangular base</li> <li>• Volume of a right rectangular prism</li> <li>• Volume of a cube</li> <li>• Quadratic formula</li> <li>• Pythagorean Theorem</li> </ul> <p style="text-align: right;"><b>NOT Included at all</b></p>	<p><b>List B</b> – Formulas only given in PT stimulus and not in CAT items.</p> <ul style="list-style-type: none"> <li>• Volume of a cone (HS)*</li> <li>• Volume of a sphere (HS)*</li> <li>• Volume of a cylinder (HS)*</li> </ul> <p>* Applications of volume formulas are not considered major work in grade 8. Performance tasks that measure more complex applications of such formulas are reserved for high school.</p> <p style="text-align: right;"><b>Included ONLY in PTs</b></p>
--	---

**Measurement Conversions:**

<p><b>List C</b> – Conversions NOT included in directions for any item type at any grade level in either the Smarter interim or summative assessments:</p> <ul style="list-style-type: none"> <li>• 1 foot = 12 inches</li> <li>• 1 yard = 3 feet</li> <li>• 1 meter = 100 centimeters</li> <li>• 1 kilometer = 1000 meters</li> <li>• 1 kilogram = 1000 grams</li> <li>• 1 liter = 1000 milliliters</li> <li>• 1 hour = 60 minutes</li> <li>• 1 minute = 60 seconds</li> <li>• 1 week = 7 days</li> </ul> <p style="text-align: right;"><b>NOT Included at all</b></p>	<p><b>List D</b> – Conversions only given in Performance Task (PT) stimulus and NOT in computer adaptive test (CAT) items:</p> <ul style="list-style-type: none"> <li>• 1 mile = 5280 feet (grade 5)*</li> <li>• 1 mile = 1760 yards (grade 5)*</li> <li>• 1 pound = 16 ounces (grade 4)*</li> <li>• 1 cup = 8 fluid ounces (grade 4)*</li> <li>• 1 pint = 2 cups (grade 4)*</li> <li>• 1 quart = 2 pints (grade 4)*</li> <li>• 1 gallon = 4 quarts (grade 4)*</li> </ul> <p>* First grade level at which tasks are eligible for the given conversion in parenthesis.</p> <p style="text-align: right;"><b>Included ONLY in PTs</b></p>
---	---

**Angle Measurements Facts and Ratios:**

<p><b>List E</b> – Angle measurement facts and ratios NOT included for any item type at any grade level in either the Smarter interim or summative assessments.</p> <ul style="list-style-type: none"> <li>• Number of degrees in a circle</li> <li>• Sum of interior angles of a triangle</li> <li>• Side length ratios in a 45-45-90 triangle</li> <li>• Side length ratios in a 30-60-90 triangle</li> <li>• Trigonometric ratios for sine, cosine, and tangent</li> </ul> <p style="text-align: right;"><b>NOT Included at all</b></p>	
--	--

**Note:** All formulas, measurement conversions, and angle measurement facts and ratios, **not** appearing in these lists may be given in CAT item stems and PTs stimuli as appropriate for a particular item or task with respect to the standards for the intended grade level.

<http://www.smarterbalanced.org/wordpress/wp-content/uploads/2014/03/Formulas-and-Conversions-Guidelines.pdf>