



# Priority Standards

## Math Priority Standards – Grade 7+

Below is a table of the priority standards.

Priority Standards	Description
7.RP.1	<p>Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. <i>For example, if a person walks <math>\frac{1}{2}</math> mile in each <math>\frac{1}{4}</math> hour, compute the unit rate as the <b>complex fraction</b> <math>\frac{\frac{1}{2}}{\frac{1}{4}}</math> miles per hour (interpreting a complex fraction as division of fractions), equivalently 2 miles per hour. - <a href="#">KSDE Flipbooks</a>*</i></p>
7.RP.2	<p>Recognize and represent proportional relationships between quantities:</p> <ul style="list-style-type: none"> <li>• 7.RP.2a. Determine whether two quantities are in a proportional relationship, <i>e.g. by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.</i></li> <li>• 7.RP.2b. Analyze a table or graph and recognize that, in a proportional relationship, every pair of numbers has the same unit rate (referred to as the “m”).</li> <li>• 7.RP.2c. Represent proportional relationships by equations. <i>For example, if total cost <math>t</math> is proportional to the number <math>n</math> of items purchased at a constant price <math>p</math>, the relationship between the total cost and the number of items can be expressed as <math>t = pn</math>.</i></li> <li>• 7.RP.2d. Explain what a point <math>(x, y)</math> on the graph of a proportional relationship means in terms of the situation, with special attention to the points <math>(0, 0)</math> and <math>(1, r)</math> where <math>r</math> is the unit rate. - <a href="#">KSDE Flipbooks</a>*</li> </ul>
7.RP.3	<p>Use proportional relationships to solve multistep ratio and percent problems. <i>Examples: simple interest, tax, markups and markdowns, gratuities and commissions, fees, percent increase and decrease, percent error. - <a href="#">KSDE Flipbooks</a>*</i></p>
7.EE.1	<p>Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients. Note: factoring is limited to integer coefficients. <i>For example: apply the distributive property to the expression <math>24x + 18y</math> to produce the equivalent expression <math>6(4x + 3y)</math>. - <a href="#">KSDE Flipbook</a>*</i></p>
7.EE.3	<p>Solve multi-step real-life and mathematical problems with rational numbers. Apply properties of operations to calculate with numbers in any form; convert</p>

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	<p>between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. <i>For example: If a woman making \$25 an hour gets a 10% raise, she will make an additional <math>\frac{1}{10}</math> of her salary an hour, or \$2.50, for a new salary of \$27.50.</i> - <a href="#">KSDE Flipbooks</a>*</p>
7.EE.4	<p>Use variables to represent quantities in a real-world or mathematical problem, and construct two-step equations and inequalities to solve problems by reasoning about the quantities.</p> <ul style="list-style-type: none"> <li>• 7.EE.4a. Solve word problems leading to equations of the form <math>px + q = r</math>, and <math>p(x + q) = r</math> where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers. Solve equations of these forms fluently (<a href="#">efficiently, accurately, and flexibly</a>). Compare an algebraic solution to an arithmetic solution, identifying the <b>sequence</b> of the operations used in each approach. <i>For example, the perimeter of a rectangle is 54 cm. Its length is 6 cm. What is its width?</i> <ul style="list-style-type: none"> <li>○ Solve word problems leading to inequalities of the form <math>px + q &gt; r</math> or</li> </ul> </li> <li>• 7.EE.4b. <math>px + q &lt; r</math> where <math>p</math>, <math>q</math>, and <math>r</math> are specific rational numbers and <math>p &gt; 0</math>. Graph the solution set of the inequality and interpret it in the context of the problem. <i>For example: As a salesperson, you are paid \$50 per week plus \$3 per sale. This week you want your pay to be at least \$100. Write an inequality for the number of sales you need to make, and describe the solutions.</i> -<a href="#">KSDE Flipbooks</a>*</li> </ul>
8.EE.3	<p>Read and write numbers expressed in scientific notation, including problems where both decimal and scientific notation are used. Use scientific notation and choose units of appropriate size for measurements of very large or very small quantities (<i>e.g. use millimeters per year for seafloor spreading</i>). Interpret scientific notation that has been generated by technology. -<a href="#">KSDE Flipbooks</a>*</p>
8.EE.5	<p>Use similar triangles to explain why the slope (<math>m</math>) is the same between any two distinct points on a non-vertical line in the coordinate plane and extend to include the use of the slope formula (<math>m = \frac{y_2 - y_1}{x_2 - x_1}</math> when given two coordinate points <math>(x_1, y_1)</math> and <math>(x_2, y_2)</math>). Generate the equation <math>y = mx</math> for a line through the origin (proportional) and the equation <math>y = mx + b</math> for a line with slope <math>m</math> intercepting the vertical axis at <math>y</math>-intercept <math>b</math> (not proportional when <math>b \neq 0</math>). -<a href="#">KSDE Flipbooks</a>*</p>
7.G.1	<p>Solve problems involving scale drawings of geometric figures, such as computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. - <a href="#">KSDE Flipbooks</a>*</p>
7.G.6	<p>Solve real-world and mathematical problems involving area of two-dimensional objects and volume and surface area of three-dimensional objects including cylinders and right prisms. (Solutions should <b>not</b> require students to take square roots or cube roots. <i>For example, given the volume of a cylinder and the area of the base, students would identify the height.</i>) - <a href="#">KSDE Flipbooks</a>*</p>

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8.G.5	Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles. <i>For example, arrange three copies of the same triangle so that the sum of the three angles appears to form a line, and give an argument in terms of transversals why this is so.</i> - <a href="#">KSDE Flipbooks</a> *
8.G.8	Apply the Pythagorean Theorem to determine unknown side lengths in right triangles in real-world and mathematical problems in two and three dimensions. <i>For example: Finding the slant height of pyramids and cones.</i> - <a href="#">KSDE Flipbooks</a> *
8.G.12	Solve real-world and mathematical problems involving arc length, area of two-dimensional shapes including sectors, volume and surface area of three-dimensional objects including pyramids, cones and spheres. - <a href="#">KSDE Flipbooks</a> *
7.SP.2	Use data from a random sample to draw inferences about a population with an unknown characteristic of interest. Generate multiple samples (or simulated samples) of the same size to informally gauge the variation in estimates or predictions. <i>For example, estimate the mean word length in a book by randomly sampling words from the book; predict the winner of a school election based on randomly sampled survey data. Gauge how far off the estimate or prediction might be.</i> - <a href="#">KSDE Flipbooks</a> *
7.SP.4	Use measures of center (mean, median and/or mode) and measures of variability (range, <b>interquartile range</b> and/or <b>mean absolute deviation</b> ) for numerical data from random samples to draw informal comparative inferences about two populations. <i>For example, decide whether the words in a chapter of a seventh-grade science book are generally longer than the words in a chapter of a fourth-grade science book. (NOTE: Students should not have to calculate mean absolute deviation but use it to interpret data).</i> - <a href="#">KSDE Flipbooks</a> *
7.SP.8	Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation. <ul style="list-style-type: none"> <li>7.SP.8a. Know that, just as with simple events, the probability of a compound event is the fraction of outcomes in the sample space for which the compound event occurs.</li> <li>7.SP.8b. Represent sample spaces for compound events using methods such as organized lists, tables and tree diagrams. For an event described in everyday language (e.g. "rolling double sixes"), identify the outcomes in the sample space which compose the event.</li> </ul> 7.SP.8c. Design and use a simulation to generate frequencies for compound events. <i>For example, use random digits as a simulation tool to approximate the answer to the question: If 40% of donors have type A blood, what is the probability that it will take at least 4 donors to find one with type A blood?</i> - <a href="#">KSDE Flipbooks</a> *
8.NS.2	<ul style="list-style-type: none"> <li>Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions (e.g. <math>\pi^2</math>). <i>For example, for the approximation of <math>\sqrt{68}</math>, show that <math>\sqrt{68}</math> is between 8 and 9 and closer to 8.</i> -<a href="#">KSDE Flipbooks</a>*</li> </ul>

*\*Kansas Department of Education has created 'Flipbooks' for current standards that detail each standard, including examples and resources to support in understanding the depth of the standard.*