

**Juneau School District
Math Core Standards
7th Grade**

Standard	Number Sense
7-CS1	<p data-bbox="371 313 1932 386">Students calculate and solve problems involving addition, subtraction, multiplication, and division</p> <p data-bbox="415 399 1829 480">* Solve problems involving addition, subtraction, multiplication, and division of positive fractions and explain why a particular operation was used for a given situation.</p> <p data-bbox="541 561 1604 724">Your after-school program is on a hiking trip. You hike $\frac{3}{4}$ of a mile and stop to rest. Your friend hikes $\frac{4}{5}$ of a mile, then turns around and hikes back $\frac{1}{8}$ of a mile. Who is farther ahead on the trail? How much farther? Explain how you solved the problem.</p> <p data-bbox="541 760 1604 922">At soccer practice the team has to run around a rectangular field that is $75\frac{1}{2}$ feet by $127\frac{3}{4}$ feet. The coach makes the team run around the field three times. How many total feet does a team member run? Explain how you solved this problem.</p> <p data-bbox="541 958 1604 1120">Mario wants to make half of his special no-bake cookie recipe. The recipe calls for $1\frac{3}{4}$ cups of white sugar, $\frac{1}{3}$ cup of margarine, $\frac{1}{2}$ cup of peanut butter, and $3\frac{1}{4}$ cups of oats. How much of each ingredient will Mario need? Explain how you solved this problem.</p> <p data-bbox="541 1156 1604 1276">Jim was on a hiking trail and after walking $\frac{3}{4}$ of a mile, he found that he was only $\frac{5}{8}$ of the way to the end of the trail. How long is the trail? Explain.</p>

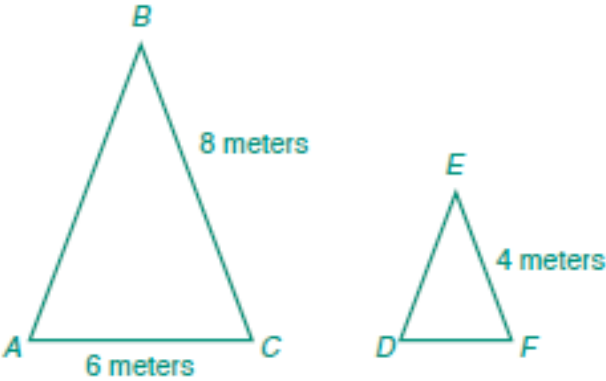
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7-CS1	<p>* Explain the meaning of multiplication and division of positive fractions and perform the calculations.</p> <p style="text-align: center;">Draw a picture that illustrates each of the following problems and its solution. Explain how your drawings illustrate the problems and the solutions.</p> <ol style="list-style-type: none">1. $\frac{3}{4} \times \frac{1}{2}$2. $\frac{3}{4} \div \frac{1}{2}$3. $2 \times \frac{1}{4}$
	<p>* Solve addition, subtraction, multiplication, and division problems, including those arising in concrete situations, that use positive and negative integers and order of operation.</p> <p style="text-align: center;">Two friends start out on a daylong hike. They start at an elevation of 526 feet. The morning hike takes them to an altitude 300 feet higher than where they started. In the afternoon the friends descend 117 feet and stop to rest. Then they continue downward and descend another 366 feet. Describe the change in altitude.</p> <p style="text-align: center;">Simplify to make the calculation as simple as possible:</p> <ol style="list-style-type: none">1. $-19 + 37 + 19$2. $(-16)(-28) + (-16)27$3. $(-8)(-4)(19)(6 + (-6))$

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7-CS1	<p>* Determine the least common multiple and the greatest common divisor of whole numbers; use them to solve problems with fractions (e.g., to find a common denominator to add two fractions or to find the reduced form for a fraction).</p> $\frac{3}{8} + \frac{1}{2} = ?$
7-CS2	<p>Students compare positive and negative fractions, decimals, and mixed numbers. Students solve problems involving fractions, ratios, proportions, and percentages:</p> <p>* Compare and order positive and negative fractions, decimals, and mixed numbers and place them on a number line.</p> <p>Order the following numbers: $\frac{20}{21}$ $-\frac{4}{9}$ -4.4 $1\frac{1}{12}$ 1.1 $\frac{3}{7}$</p> <p>If you were to place $-\frac{2}{3}$, -3, and $-\frac{7}{8}$ on a number line, which number would be closest to -1? Use a number line to explain your answer.</p> <p>Place the following numbers on a number line:</p> 0.3 $-\frac{3}{10}$ $2\frac{1}{2}$ $\frac{4}{5}$ $\frac{7}{8}$ -2 <p>* Interpret and use ratios in different contexts (e.g., batting averages, miles per hour) to show the relative sizes of two quantities, using appropriate notations (a/b, a to b, a:b).</p>

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7-CS2	<p data-bbox="420 329 1833 443">* Use proportions to solve problems (i.e., similar figures); Use cross-multiplication as a method for solving such problems, understanding it as the multiplication of both sides of an equation by a multiplicative inverse.</p> <p data-bbox="533 483 1325 529">$\triangle ABC$ is similar to $\triangle DEF$. What is the length of \overline{DF}?</p> <div data-bbox="562 592 1163 971"><p>The diagram shows two triangles, $\triangle ABC$ and $\triangle DEF$. Triangle ABC has vertices A, B, and C. The base AC is labeled "6 meters" and the side BC is labeled "8 meters". Triangle DEF has vertices D, E, and F. The side EF is labeled "4 meters". The triangles are oriented similarly, with B and E at the top, A and D at the bottom left, and C and F at the bottom right.</p></div> <p data-bbox="569 1049 1640 1127">Ballpoint pens are sold in bundles of four. Lee bought 24 pens for \$14.40. How much would 56 pens cost? Carefully explain your solution.</p> <p data-bbox="569 1159 701 1190">Find n if:</p> <ol data-bbox="569 1219 758 1393" style="list-style-type: none">$\frac{49}{21} = \frac{14}{n}$$\frac{28}{n} = \frac{36}{27}$

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Standard	Standard
7-CS2	<p>* Calculate given percentages of quantities and solve problems involving discounts at sales, interest earned, and tips.</p> <p style="text-align: center;">Ann paid \$70.20 for a dress, and the amount includes an 8% sales tax. What is the cost of the dress before the tax?</p>
Standards	Algebra and Functions.
7-CS3	<p>Students write verbal expressions and sentences as algebraic expressions and equations; they evaluate algebraic expressions, solve simple linear equations, and graph and interpret their results:</p> <p>* Write and solve one-step linear equations in one variable.</p> <p style="text-align: center;">What value of k makes the following equation true? $k + 3 = 36$ $y - 2 = 10$. What is y? $6y = 12$. What is y?</p> <p style="text-align: center;">If a number y satisfies $y + 17 = 10$, what is y? If a number x satisfies $3x = 25$, what is x?</p>
7-CS4	<p>Students analyze and use tables, graphs, and rules to solve problems involving rates and proportions.</p> <p>* Demonstrate an understanding that rate is a measure of one quantity per unit value of another quantity.</p> <p style="text-align: center;">Joe can type 9 words in 8 seconds. At this rate, how many words can he type in 2 minutes?</p>

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Standards	Measurement and Geometry
7-CS5	Students deepen their understanding of the measurement of plane and solid shapes and use this understanding to solve problems:
	<p>* Understand the concept of a constant such as 3.14; know the formulas for the circumference and area of a circle.</p> <p style="text-align: center; color: #00b050;">Which equation could be used to find the area in square inches of a circle with a radius of 8 inches?</p> <p style="text-align: center;">(a) $A = 4 \times \pi$ (b) $A = \pi \times 4^2$ (c) $A = 8 \times \pi$ (d) $A = \pi \times 8^2$</p>
7-CS6	Students identify and describe the properties of two-dimensional figures:
	<p>* Use the properties of complementary and supplementary angles and the sum of the angles of a triangle to solve problems involving an unknown angle.</p> <p style="text-align: center; color: #00b050;">Find the missing angles <i>a</i>, <i>b</i>, <i>c</i>, and <i>d</i>.</p> <div style="text-align: center;"> </div>
Standards	Statistics, Data Analysis, and Probability
7-CS7	Students compute and analyze statistical measurements for data sets:
	<p>* Compute the range, mean, median, and mode of data sets.</p>

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7-CS8	<p>Students use data samples of a population and describe the characteristics and limitations of the samples:</p> <ul style="list-style-type: none"> * Identify different ways of selecting a sample (e.g., convenience sampling, responses to a survey, random sampling) and which method makes a sample more representative for a population. * Analyze data displays and explain why the way in which the question was asked might have influenced the results obtained and why the way in which the results were displayed might have influenced the conclusion reached. * Identify data that represent sampling errors and explain why the sample (and the display) might be biased. * Identify claims based on statistical data and, in simple cases, evaluate the validity of the claims. <p style="text-align: center; color: #008080;">Calvin has been identified as the best runner in your school because he won the 50-yard dash at the all-schools track meet. Use the records of the track team in the table shown below to decide if Calvin is the best runner in the school. Explain your decision, using the data in the table.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><i>Runner</i></th> <th style="text-align: center;"><i>Race 1</i></th> <th style="text-align: center;"><i>Race 2</i></th> <th style="text-align: center;"><i>Race 3</i></th> <th style="text-align: center;"><i>Race 4</i></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Brian</td> <td style="text-align: center;">27.3</td> <td style="text-align: center;">27.6</td> <td style="text-align: center;">30.1</td> <td style="text-align: center;">26.2</td> </tr> <tr> <td style="text-align: center;">Maria</td> <td style="text-align: center;">26.5</td> <td style="text-align: center;">26.3</td> <td style="text-align: center;">26.0</td> <td style="text-align: center;">27.1</td> </tr> <tr> <td style="text-align: center;">Calvin</td> <td style="text-align: center;">30.2</td> <td style="text-align: center;">28.1</td> <td style="text-align: center;">29.4</td> <td style="text-align: center;">25.0</td> </tr> <tr> <td style="text-align: center;">Alice</td> <td style="text-align: center;">28.2</td> <td style="text-align: center;">29.0</td> <td style="text-align: center;">32.0</td> <td style="text-align: center;">27.4</td> </tr> <tr> <td style="text-align: center;">Fred</td> <td style="text-align: center;">32.1</td> <td style="text-align: center;">32.5</td> <td style="text-align: center;">29.0</td> <td style="text-align: center;">30.0</td> </tr> <tr> <td style="text-align: center;">José</td> <td style="text-align: center;">26.2</td> <td style="text-align: center;">26.0</td> <td style="text-align: center;">25.8</td> <td style="text-align: center;">25.5</td> </tr> </tbody> </table>	<i>Runner</i>	<i>Race 1</i>	<i>Race 2</i>	<i>Race 3</i>	<i>Race 4</i>	Brian	27.3	27.6	30.1	26.2	Maria	26.5	26.3	26.0	27.1	Calvin	30.2	28.1	29.4	25.0	Alice	28.2	29.0	32.0	27.4	Fred	32.1	32.5	29.0	30.0	José	26.2	26.0	25.8	25.5
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7-CS8	<p style="text-align: center;">Soraya has been assigned to do a survey for the student council. However, she forgets to do this task until the morning of the meeting, so she asks three of her best friends what kind of music they would like for a noon-time dance. Their opinions are what Soraya will report to student council.</p> <p style="text-align: center;">Do you think Soraya's report is an accurate reflection of the kind of music that students want played for the noon-time dance? Explain your answer.</p>
7-CS9	<p>Students determine theoretical and experimental probabilities and use these to make predictions about events.</p> <ul style="list-style-type: none">* Represent all possible outcomes for compound events in an organized way (e.g., tables, grids, tree diagrams) and express the theoretical probability of each outcome.* Represent probabilities as ratios, proportions, decimals between 0 and 1, and percentages between 0 and 100 and verify that the probabilities computed are reasonable; know that if P is the probability of an event, I-P is the probability of an event not occurring.* Understand the difference between independent and dependent events.