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Correlated to:

**Massachusetts Mathematics Curriculum Framework
Grades 9-10**

Massachusetts Mathematics Curriculum Framework	PAGE(S) WHERE TAUGHT (If submission is not a book, cite appropriate location(s))
<p>Number Sense and Operations Understand numbers, ways of representing numbers, relationships among numbers, and number systems Understand meanings of operations and how they relate to one another Compute fluently and make reasonable estimates</p>	
<p>10.N.1 Identify and use the properties of operations on real numbers, including the associative, commutative, and distributive properties; the existence of the identity of positive real numbers for any positive integer n; and the inverse relationship between taking the n root of and the n power of a positive real number.</p>	<p>SE/TE 49, 52-55, 57, 66, 72, 82, 83, 86-89, 97, 172-178, 282-285, 356, 373, 380, 381, 390, 498, 532-535, 672, 676, 677, 679, 684, 685, 686, 691</p> <p>LR 2-1, 2-2, 2-4, 2-5, 2-7, 4-6, 4-7, 6-9, 8-5, 9-2, 9-4, 11-6, 12-4</p> <p>Technology www.learningmathmatters.com</p>
<p>10.N.2 Simplify numerical expressions, including those involving positive integer exponents or the absolute value, e.g., $3(2 - 1) = 45$, $4 3 - 5 + 6 = 14$; apply such simplifications in the solution of problems.</p>	<p>SE/TE 56, 66, 76-79, 82-85, 240, 381, 599, 682, 684, 685, 688</p> <p>LR 2-2, 2-4, 2-6, 2-7, 9-2</p> <p>Technology www.learningmathmatters.com</p>
<p>10.N.3 Find the approximate value for solutions to problems involving square roots and cube without the use of a calculator, e.g., $\sqrt{3} - 1 \approx 2.8$.</p>	<p>SE/TE 136-139, 598, 689</p> <p>LR 3-8</p> <p>Technology www.learningmathmatters.com</p>
<p>10.N.4 Use estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers.</p>	<p>SE/TE 3, 52-55, 508-509, 677, 686</p> <p>LR 2-1, 11-8</p> <p>Technology www.learningmathmatters.com</p>

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<p>Patterns, Relationships, and Algebra Understand patterns, relations, and functions Represent and analyze mathematical situations and structures using algebraic symbols Use mathematical models to represent and understand quantitative relationships Analyze change in various contexts</p>	
<p>10.P.1 Describe, complete, extend, analyze, generalize, and create a wide variety of patterns, including iterative, recursive (e.g., Fibonacci Numbers), linear, quadratic, and exponential functional relationships.</p>	<p>SE/TE 21, 92-93, 241, 254-257, 274-275, 542-545, 591, 596, 677, 678, 680</p> <p>LR 1-4, 2-9, 6-3, 6-7, 12-6</p> <p>Technology www.learningmathmatters.com</p>
<p>10.P.2 Demonstrate an understanding of the relationship between various representations of a line. Determine a line's slope and x- and y-intercepts from its graph or from a linear equation that represents the line. Find a linear equation describing a line from a graph or a geometric description of the line, e.g., by using the "point-slope" or "slope y-intercept" formulas. Explain the significance of a positive, negative, zero, or undefined slope.</p>	<p>SE/TE 20-23, 192, 193, 202, 248-251, 254, 300, 310-313, 330, 592, 680, 688, 691</p> <p>LR 1-4, 5-1, 5-3, 62, 6-3, 7-2, 7-4</p> <p>Technology www.learningmathmatters.com</p>
<p>10.P.3 Add, subtract, and multiply polynomials. Divide polynomials by monomials.</p>	<p>SE/TE 374-417, 681, 684</p> <p>LR 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8</p> <p>Technology www.learningmathmatters.com</p>
<p>10.P.4 Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms; factors (e.g., $a^2 - b^2 = (a+b)(a-b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^2 + 10x - 5x^2 = 5x(x + 2x - 1)$); identifying and canceling common factors in rational expressions; and applying the properties of positive integer exponents.</p>	<p>SE/TE 52, 374-417, 599, 677, 681, 684</p> <p>LR 2-1, 9-1, 9-2, 9-3, 9-4, 9-5, 9-6, 9-7, 9-8</p> <p>Technology www.learningmathmatters.com</p>

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10.P.5 Find solutions to quadratic equations (with real roots) by factoring, completing the square, or using the quadratic formula. Demonstrate an understanding of the equivalence of the methods.	SE/TE 101, 136-139, 268, 269-271, 404-407, 471, 521, 597, 598, 677, 689 LR 3-8, 6-6, 9-7, 12-1 Technology www.learningmathmatters.com
10.P.6 Solve equations and inequalities including those involving absolute value of linear expressions (e.g., $ x - 2 > 5$) and apply to the solutions of problems.	SE/TE 49, 54, 102-145, 268, 331, 471, 599, 672, 677, 685, 690 LR 2-1, 3-1, 3-2, 3-3, 3-4, 3-5, 3-6, 3-7, 3-8, 6-6 Technology www.learningmathmatters.com
10.P.7 Solve everyday problems that can be modeled using linear, reciprocal, quadratic, or exponential functions. Apply appropriate tabular, graphical, or symbolic methods to the solution. Include compound interest, and direct and inverse variation problems. Use technology when appropriate.	SE/TE 58, 59, 64, 68, 69, 92-93, 114, 115, 118, 119, 151, 162, 163-165, 232-233, 242-291, 358-360, 405, 406, 497, 498, 674, 676, 678, 679, 681 LR 2-2, 2-3, 2-4, 2-9, 3-3, 3-4, 4-1, 4-2, 4-4, 5-9, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 7-6, 8-6, 9-7, 11-5, 12-3 Technology www.learningmathmatters.com
10.P.8 Solve everyday problems that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution. Use technology when appropriate. Include mixture, rate, and work problems.	SE/TE 26, 58, 59, 64, 68, 69, 92-93, 114, 115, 118, 119, 151, 154, 162, 163-165, 232-233, 242-291, 320, 358-360, 405, 406, 497, 498, 508, 530, 596, 597, 674, 676, 678, 679, 680, 681 LR 1-5, 2-2, 2-3, 2-4, 2-9, 3-3, 3-4, 4-1, 4-2, 4-4, 5-9, 6-1, 6-2, 6-3, 6-4, 6-5, 6-6, 6-7, 6-8, 6-9, 7-6, 8-6, 9-7, 11-5, 12-3 Technology www.learningmathmatters.com

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<p>Geometry Analyze characteristics and properties of two- and three-dimensional geometric shapes and develop mathematical arguments about geometric relationships Specify locations and describe spatial relationships using coordinate geometry and other representational systems Apply transformations and use symmetry to analyze mathematical situations Use visualization, spatial reasoning, and geometric modeling to solve problems</p>	
<p>10.G.1 Identify figures using properties of sides, angles, and diagonals. Identify the figures' type(s) of symmetry.</p>	<p>SE/TE 196, 197-199, 202, 206, 207, 213, 216, 217, 222-225, 227, 228, 293, 306-309, 310, 498-501, 592, 672, 674, 675, 676, 677, 679, 680, 686, 691</p> <p>LR 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 7-3, 7-4, 11-6</p> <p>Technology www.learningmathmatters.com</p>
<p>10.G.2 Draw congruent and similar figures using a compass, straightedge, protractor, and other tools such as computer software. Make conjectures about methods of construction. Justify the conjectures by logical arguments.</p>	<p>SE/TE 11, 16, 40, 58, 75, 190-239, 293, 295, 327, 474, 490, 491, 494, 497, 498, 500, 501, 504, 507, 518-557, 674, 688</p> <p>LR 1-2, 1-3, 1-7, 2-2, 5-1, 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 5-9, 11-1, 11-4, 11-5, 11-6, 11-7, 12-1, 12-2, 12-3, 12-4, 12-5, 12-6, 12-7</p> <p>Technology www.learningmathmatters.com</p>
<p>10.G.3 Recognize and solve problems involving angles formed by transversals of coplanar lines. Identify and determine the measure of central and inscribed angles and their associated minor and major arcs. Recognize and solve problems associated with radii, chords, and arcs within or on the same circle.</p>	<p>SE/TE 196, 197-199, 202, 206, 207, 213, 216, 217, 222-225, 227, 228, 293, 306-309, 310, 498-501, 592, 672, 673, 674, 675, 676, 677, 679, 680, 685, 686, 691</p> <p>LR 5-2, 5-3, 5-4, 5-5, 5-6, 5-7, 5-8, 7-3, 7-4, 11-6</p> <p>Technology www.learningmathmatters.com</p>

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10.G.4 Apply congruence and similarity correspondences (e.g., $\triangle ABC = \triangle XYZ$) and properties of the figures to find missing parts of geometric figures, and provide logical justification.	SE/TE 146, 188, 206, 207-209, 222, 418, 419, 422, 470, 484-487, 494-497, 498-501, 504-507, 595, 672, 677, 680, 682, 685, 686, 687, 690 LR 5-4, 5-7, 10-1, 11-3, 11-5, 11-6, 11-7 Technology www.learningmathmatters.com
10.G.5 Solve simple triangle problems using the triangle angle sum property and/or the Pythagorean theorem.	SE/TE 146, 188, 206, 207-209, 222, 418, 419, 422, 470, 484-487, 494-497, 498-501, 504-507, 595, 672, 677, 680, 682, 685, 686, 687, 690 LR 5-4, 5-7, 10-1, 11-3, 11-5, 11-6, 11-7 Technology www.learningmathmatters.com
10.G.6 Use the properties of special triangles (e.g., isosceles, equilateral, $30^\circ - 60^\circ - 90^\circ$, $45^\circ - 45^\circ - 90^\circ$) to solve problems.	SE/TE 146, 188, 206, 207-209, 222, 418, 419, 422, 470, 484-487, 494-497, 498-501, 504-507, 595, 672, 677, 680, 682, 685, 686, 687, 690 LR 5-4, 5-7, 10-1, 11-3, 11-5, 11-6, 11-7 Technology www.learningmathmatters.com
10.G.7 Using rectangular coordinates, calculate midpoints of segments, slopes of lines and segments, and distances between two points, and apply the results to the solutions of problems.	SE/TE 52, 193, 240, 244-247, 248-251, 292, 296-299, 300-303, 306-309, 316-319, 330, 673, 675, 681, 688, LR 2-1, 5-1, 6-1, 6-2, 7-1, 7-2, 7-3, 7-5 Technology www.learningmathmatters.com

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10.G.8 Find linear equations that represent lines either perpendicular or parallel to a given line and through a point, e.g., by using the “point-slope” form of the equation.	SE/TE 202-205, 254, 255-257, 334-337, 592, 596, 597, 678, 680, 683 LR 5-3, 6-3, 8-1 Technology www.learningmathmatters.com
10.G.9 Draw the results, and interpret transformations on figures in the coordinate plane, e.g., translations, reflections, rotations, scale factors, and the results of successive transformations. Apply transformations to the solutions of problems.	SE/TE 52, 122, 193, 240, 244-247, 248-251, 292, 294-329, 330, 467, 672, 673, 675, 681, 686, 687, 688, 689 LR 2-1, 3-5, 5-1, 6-1, 6-2, 7-1, 7-2, 7-, 7-4, 7-5, 7-6 Technology www.learningmathmatters.com
10.G.10 Demonstrate the ability to visualize solid objects and recognize their projections and cross sections.	SE/TE 52, 122, 193, 222, 240, 244-247, 248-251, 292, 294-329, 330, 467, 672, 673, 675, 676, 681, 686, 687, 688, 689 LR 2-1, 3-5, 5-1, 6-1, 6-2, 7-1, 7-2, 7-, 7-4, 7-5, 7-6 Technology www.learningmathmatters.com
10.G.11 Use vertex-edge graphs to model and solve problems.	SE/TE 58, 59, 64, 68, 69, 196, 206, 222, 232, 233, 359, 382, 405, 410, 411, 422, 691 LR 2-2, 2-3, 5-2, 5-4, 5-7, 5-9, 8-6, 9-2, 9-7, 9-8 Technology www.learningmathmatters.com

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<p>Measurement Understand measurable attributes of objects and the units, systems, and processes of measurement Apply appropriate techniques, tools, and formulas to determine measurements</p>	
<p>10.M.1 Calculate perimeter, circumference, and area of common geometric figures such as parallelograms, trapezoids, circles, and triangles.</p>	<p>SE/TE 146, 226, 418, 426, 427, 428-429, 432-435, 462-463, 672, 673, 683, 689</p> <p>LR 5-8, 10-2, 10-3, 10-9</p> <p>Technology www.learningmathmatters.com</p>
<p>10.M.2 Given the formula, find the lateral area, surface area, and volume of prisms, pyramids, spheres, cylinders, and cones, e.g., find the volume of a sphere with a specified surface area.</p>	<p>SE/TE 146, 226, 418, 426, 427, 428-429, 432-435, 452-455, 456-459, 462-463, 672, 673, 683, 689, 691</p> <p>LR 5-8, 10-2, 10-3, 10-7, 10-8, 10-9</p> <p>Technology www.learningmathmatters.com</p>
<p>10.M.3 Relate changes in the measurements of one attributes, e.g., how changing the radius or height of a cylinder affects its surface area or volume.</p>	<p>SE/TE 10-13, 226, 293, 422, 456-459, 470, 498-501, 599, 675, 681, 685</p> <p>LR 1-2, 5-8, 10-1, 10-8, 11-6</p> <p>Technology www.learningmathmatters.com</p>
<p>10.M.4 Describe the effects of approximate error in measurement and rounding on measurements and on computed values from measurements.</p>	<p>SE/TE 3, 12, 19, 10-13, 75, 175, 224, 226, 293, 299, 382, 422, 456-459, 470, 491, 498-501, 523, 599, 610, 675, 677, 681, 685, 687</p> <p>LR 1-2, 1-3, 2-5, 4-6, 5-7, 5-8, 7-1, 9-2, 10-1, 10-8, 11-4, 11-6, 12-1</p> <p>Technology www.learningmathmatters.com</p>

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<p>Data, Analysis, Statistics, and Probability Formulate questions that can be addressed with data and collect, organize, and display relevant data to answer them Select and use appropriate statistical methods to analyze data Develop and evaluate inferences and predictions that are based on data Understand and apply basic concepts of probability</p>	
<p>10.D.1 Select, create, and interpret an appropriate graphical representation (e.g., scatter-plot, table, stem-and-leaf plots, box-and-whisker plots, circle graph, line graph, and line plot) for a set of data and use appropriate statistics (e.g., mean, median, range, and mode) to communicate information about the data. Use these notions to compare different sets of data.</p>	<p>SE/TE 2-47, 79, 122, 144, 232-233, 264, 599, 673, 680, 681, 687, 689, 691</p> <p>LR 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 3-5, 5-9, 6-5</p> <p>Technology www.learningmathmatters.com</p>
<p>10.D.2 Approximate a line of best fit (trend line) given a set of data (e.g., scatterplot). Use technology when appropriate.</p>	<p>SE/TE 2-47, 79, 122, 144, 232-233, 264, 599, 673, 680, 681, 687, 689, 691</p> <p>LR 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, 3-5, 5-9, 6-5</p> <p>Technology www.learningmathmatters.com</p>
<p>10.D.3 Describe and explain how the relative sizes of a sample and the population affect the validity of predictions from a set of data.</p>	<p>SE/TE 2-47, 673, 675, 681, 685, 689</p> <p>LR 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8</p> <p>Technology www.learningmathmatters.com</p>