



CONNECTICUT
Mathematics Curriculum Framework
Content Standards Grades 9-12
Algebra 1 © 2003 and Geometry © 2004

OBJECTIVES	PAGE REFERENCES	
	ALGEBRA 1	GEOMETRY
CONTENT STANDARD 1: Number Sense <i>Students will use numbers to count, measure, compare, order, scale, locate and label, and use a variety of numerical representations to present, interpret, communicate and connect various kinds of numerical information.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> use real-life experiences, physical materials and technology to construct meanings for rational and irrational numbers, including integers, percents and roots; 	SE: 72 #58-59, 82 #50, 85 #4, 108 #51, 162 #12-13, 172 #2, 175 #25 <i>Algebra Activity</i> 49, 347 <i>Reading Mathematics</i> 165	SE: 94, 282 #1, 285 #5, 734-735, 744-745 <i>Geometry Software Investigation</i> 101 <i>Study Tip</i> 14
<ul style="list-style-type: none"> use number sense and the properties of various subsets of real numbers to solve real-world problems; 	SE: 15 #45, 68-69, 72 #58-59, 73-75, 82 #50, 84-85, 104-106, 108 #51, 157 #5, 159 #34	SE: 18 #42, 26 #46, 47 #2, 50 #35, 94, 97 #14, 374 #14, 375 #25, 381 #4
<ul style="list-style-type: none"> develop and use an intuitive sense of the magnitude of numbers (including very large and very small numbers) and relate them to place value and exponential forms; and 	SE: 68-69, 425-427, 429 #43, 430 #63, 465, 561-563, 564 #13, 565 #25-28 <i>Algebra Activity</i> 569	SE: 286 #26, 369 #59, 730-731
<ul style="list-style-type: none"> select an appropriate form to represent and use numerical data (integer, fraction, decimal, ratio, percent, exponential, scientific notation, irrational, complex) as they arise from real-world situations involving magnitude, order, measures, labels, locations and scales. 	SE: 68-69, 72 #58-59, 82 #50, 85 #4, 88-91, 157 #5, 159 #34, 425-427, 429 #56, 802-805	SE: 47 #2, 282, 284 #4, 285 #5, 374 #9, 730-731 TWE: TNT 283

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	ALGEBRA 1	GEOMETRY
CONTENT STANDARD 2: Operations <i>Students will add, subtract, multiply and divide with whole numbers, fractions, decimals and integers and develop strategies for selecting the appropriate computational and operational methods for solving problems.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> use arithmetic operations to solve problems encountered in everyday consumer situations; 	SE: 14 #41-43, 19 #47-48, 26-29, 35 #28-29, 75 #3, 77 #60-62, 79-80, 84-85, 87 #56-57, 103	SE: 50 #38, 63 #3, 106 #30, 143 #39-41, 285 #14
<ul style="list-style-type: none"> apply and explain procedures for performing calculations with whole numbers, decimals, fractions and integers; 	SE: 11-13, 14 #40, 21-22, 73-75, 79-80, 84-86, 87 #56-57, 136, 798-801, 804-805	SE: 18 #42, 94, 284 #4, 286 #26-27, 290 #2, 292 #5, 296 #57, 300 #3, 304 #41, 734-735
<ul style="list-style-type: none"> use appropriate methods for computing, including mental math, estimation, paper-and-pencil and calculator methods; 	SE: 17-18, 52 #3, 142-144, 535, 540, 616-618 <i>Graphing Calculator Investigation 333, 553, 600</i> TWE: TNT 106	SE: 143 #39-41 TWE: TNT 39
<ul style="list-style-type: none"> use field properties and the relationship between operations and their inverses to justify mathematical procedures; and 	SE: 21-22, 26-29, 30 #29-30, 32-34, 35 #32-43, 60, 74-75, 135-137, 139 #46-49, 800	SE: 94-96, 98 #24-25, 118-119, 146 #3-4, 240-242, 247, 736-738
<ul style="list-style-type: none"> use absolute value, powers and roots; explore and use negative exponents on integers. 	SE: 69-70, 103-106, 108 #51, 159 #50-53, 344 #73-80, 345-348, 350 #46-47, 410-412, 421 #4-12 <i>Graphing Calculator Investigation 418</i>	SE: 342, 350-353, 357-359, 690 #3, 735 #5, 744-749
CONTENT STANDARD 3: Estimation and Approximation <i>Students will make estimates and approximations, and judge the reasonableness of results.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> assess the reasonableness of answers to problems arrived at using pencil-and-paper techniques, mental math, formulas, calculators or computers; 	SE: 17-18 #4 <i>Algebra Activity 49</i> TWE: DI 90 TNT 106	SE: 39 #2, 153 #2, 248 #1, 292 #5, 667 #1 <i>Study Tip 32</i>
<ul style="list-style-type: none"> develop, use and apply a variety of estimation strategies in problem situations; 	SE: 17-18, 52 #3, 142-144, 147 #51-52, 535, 609 #46-47, 614 #40-42, 616-618, 623-627 <i>Study Tip 50</i>	SE: 143 #39-41, 212 #29, 286 #26-27, 304 #41-42, 305 #43 TWE: DI 24

OBJECTIVES	PAGE REFERENCES	
	ALGEBRA 1	GEOMETRY
<ul style="list-style-type: none"> make reasonable estimates of the values of formulas, functions and roots; and 	SE: 17-18, 147 #51-52, 535, 613 #11-12, 616-618 TWE: DI 90 TNT 106	SE: 272 #28-29, 744-745
<ul style="list-style-type: none"> recognize the limitations of estimation and assess the amount of error resulting from estimation. 	SE: 17-18, 52 #3, 535, 614 #40-42, 616-618, 623-627 <i>Algebra Activity 347</i> <i>Study Tip 50</i>	See Glencoe's <i>Algebra 1</i> ©2003 pages 17-18, 616-618.
CONTENT STANDARD 4: Ratios, Proportions and Percents <i>Students will use ratios, proportions and percents to represent relationships between quantities and measures and solve problems involving ratios, proportions and percents.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> understand and explain the need for proportions and percents; 	SE: 155-157, 159 #33, 160-161, 163 #29, 182-183, 605-607, 615 #63-68, 642-644, 802-803 <i>Reading Mathematics 165</i>	SE: 282-284, 290-292, 298 TWE: TNT 300
<ul style="list-style-type: none"> use ratios, proportions and percents to solve real-world problems; 	SE: 155-157, 158 #17-18, 159 #35, 172, 182-183, 217 #61-66, 802-805 <i>Algebra Activity 743-744</i> <i>Reading Mathematics 165</i>	SE: 282-284, 285 #11, 286 #26-27, 287 #41, 290-292, 294 #24-26, 296 #51-52, 304 #41-42, 321 #28
<ul style="list-style-type: none"> use dimensional analysis and equivalent rates to solve problems; 	SE: 167-168, 169 #36-37, 258 #6, 266 #5, 274, 656 #3, 658 #35-37, 661 #5, 663 #40-41	SE: 596 #2, 612 #2, 613 #7, 689 #2, 700 #20-23, 730-731
<ul style="list-style-type: none"> describe direct and indirect variation and apply them to numerical, geometric and algebraic models and related problems; and 	SE: 264-267, 269 #54-55, 272-274, 276 #45-46, 280-282, 642-644, 646 #34-36, 653 #59-61, 696 <i>Algebra Activity 271</i>	SE: 139-141, 143 #39-41, 144 #47, 145-147
<ul style="list-style-type: none"> describe trigonometric ratios and apply them to measuring triangles. 	SE: 623-626, 628 #18, 629 #61-62, 630 #63-64, 636 <i>Algebra Activity 622</i>	SE: 364-367, 369 #59, 371-372, 373 #6, 375 #25, 376 #28, 379 #3, 382 #38-39, 383 #44-45, 389 #42

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	ALGEBRA 1	GEOMETRY
CONTENT STANDARD 5: Measurement <i>Students will make and use measurements in both customary and metric units to approximate, measure and compute length, area, volume, mass, temperature, angle and time.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> extend, apply and formalize understandings of measurement, including strategies for determining perimeters, areas and volumes, and the dimensionality relationships among them; 	SE: 8 #2, 9 #47, 15 #46, 124 #23-26, 268 #43-44, 330 #45, 414 #43-48, 513 #55-56, 813-817	SE: 46-47, 649-651, 655-656, 660-662, 666-667, 671-673, 688-691, 696-698, 702-704, 732-733
<ul style="list-style-type: none"> describe and apply the effect of a change in length on the area and volume of an object; 	SE: 156-157, 477 #6	SE: 47 #2, 48 #8, 49 #22-25, 599 #32-34, 647 #36-38 <i>Spreadsheet Investigation</i> 695, 708-709
<ul style="list-style-type: none"> choose appropriate tools and techniques to measure quantities to specified degrees of precision and accuracy; 	SE: 609 #46-47, 614 #37, 618 #3 <i>Algebra Activity</i> 626	SE: 13-16, 17 #16-21, 19 #52-55, 30 #1, 54 <i>Geometry Software Investigation</i> 51-52 TWE: DI 24
<ul style="list-style-type: none"> use techniques of algebra, geometry and trigonometry to measure quantities indirectly; and 	SE: 410 #49, 609 #46-47, 611-613, 614 #37, 615 #57-62, 618 #3, 623-625 <i>Algebra Activity</i> 626	SE: 300 #3, 303 #32, 304 #41-42, 305 #43, 314 #35-37, 321 #28, 344 #3, 351 #1, 369 #49 TWE: OEA 306
<ul style="list-style-type: none"> use and create scales and calibrations to solve problems involving measurement. 	SE: 157 #4, 159 #33, 269 #52-53, 609 #46-47, 614 #40-42, 616-618, 620 #31-32 <i>Algebra Activity</i> 626	SE: 13-15, 30, 290-292, 310 #4, 312 #13, 493
CONTENT STANDARD 6: Spatial Relationships and Geometry <i>Students will analyze and use spatial relationships and basic concepts of geometry to construct, draw, describe and compare geometric models and their transformations, and use geometric relationships and patterns to solve problems.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> use transformations, coordinates and vectors and appropriate computer software to explore and develop an understanding of Euclidean geometry; 	SE: 192-194, 197-200, 218-220, 298-301 <i>Graphing Calculator Investigation</i> 224-225	SE: 463-466, 470-471, 476-478, 483-485, 490-493, 498-502, 506-508 <i>Geometry Activity</i> 165-166, 462, 489

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	ALGEBRA 1	GEOMETRY
<ul style="list-style-type: none"> deduce properties of, and relationships among, figures from given assumptions; 	SE: 616-618, 623-626, 812-817	SE: 178-180, 185-188, 289-292, 404-406, 424-427, 522-525, 636-639, 643-645 <i>Geometry Activity</i> 184 <i>Spreadsheet Investigation</i> 410
<ul style="list-style-type: none"> develop an understanding of an axiomatic system through geometric investigations, making conjectures, formulating arguments and constructing proofs; 	SE: 21-23, 26-29, 32-34, 75	SE: 62-63, 89-91, 107-111, 185-188, 200-203 <i>Geometry Software Investigation</i> 51-52, 343, 448, 552
<ul style="list-style-type: none"> understand and analyze the geometry of three dimensional shapes and their cross-sections; 	SE: 124 #24-26, 126 #52, 340 #42, 456 #43-44, 812	SE: 636-639, 640 #25-27, 643-645, 649-651, 655-656, 660-662, 666-667, 671-673, 696-698
<ul style="list-style-type: none"> solve real-world and mathematical problems using geometric models; and 	SE: 605-607, 609 #41-43, 612-613, 614 #40-42, 616-618, 620 #31-32, 629 #61-62, 630 #63-64 <i>Algebra Activity</i> 626	SE: 181 #21, 182 #30, 189 #11, 205 #26-27, 212 #29, 220 #34, 344 #3, 541 #44, 567 #42, 693 #26
<ul style="list-style-type: none"> interpret algebraic equations and inequalities geometrically, and describe geometric objects algebraically. 	SE: 68-70, 72 #58, 280-283, 605-607, 611-612, 616-618 <i>Algebra Activity</i> 28, 122, 416 <i>Graphing Calculator Investigation</i> 224-225	SE: 94-96, 139-141, 151-154, 178-180, 222-223, 225 #29, 261-263, 447-449, 575-577 <i>Geometry Activity</i> 28
<p>CONTENT STANDARD 7: Probability and Statistics <i>Students will use basic concepts of probability and statistics to collect, organize, display and analyze data, simulate events and test hypotheses. Educational experiences in Grades 9-12 will assure that students:</i></p>		
<ul style="list-style-type: none"> estimate probabilities, predict outcomes and test hypotheses using statistical techniques; 	SE: 96-98, 99 #14-21, 100 #57-58, 782-784, 785 #9-12, 786 #22-24, 787 #34-35, 788 #42-44, 792 <i>Algebra Activity</i> 102	SE: 265 #48-49, 527 #56-57, 549 #7, 550 #31-34, 622-624, 648 #46, 700 #28, 705 #27 <i>Geometry Activity</i> 20
<ul style="list-style-type: none"> design a sampling experiment, interpret the data, and recognize the role of sampling in statistical claims; 	SE: 708-710, 712 #28, 721 #58-59, 745-746 <i>Reading Mathematics</i> 714 TWE: OEA 713	SE: 533 #13, 626 #20-23
<ul style="list-style-type: none"> use the law of large numbers to interpret data from a sample of a particular size; 	SE: 782, 785 #2, 787 #36-38 <i>Algebra Activity</i> 783	See Glencoe's <i>Algebra 1</i> ©2003 pages 782, 785, 787.

OBJECTIVES	PAGE REFERENCES	
	ALGEBRA 1	GEOMETRY
<ul style="list-style-type: none"> select appropriate measures of central tendency, dispersion and correlation; 	SE: 88-91, 93 #32-34, 298-301, 722-724, 731-733, 737-739 <i>Graphing Calculator Investigation</i> 306-307 <i>Reading Mathematics</i> 95	SE: 342-344
<ul style="list-style-type: none"> design and conduct a statistical experiment and interpret its results; 	SE: 782-784, 785 #6-8, 786 #22-24, 787 #39-41, 792 TWE: OEA 788	SE: 533 #13, 626 #20-23
<ul style="list-style-type: none"> draw conclusions from data and identify fallacious arguments or claims; 	SE: 43-45, 50-52, 55 #17, 722-724, 737-739 <i>Algebra Activity</i> 49, 743-744 <i>Spreadsheet Investigation</i> 56	SE: 62-63, 65 #38-40, 75-76, 86 #32
<ul style="list-style-type: none"> use scatterplots and curve-fitting techniques to interpolate and predict from data; 	SE: 298-301, 302 #10-13, 303 #18-23, 304 #29-33, 312 <i>Graphing Calculator Investigation</i> 306-307, 729-730	See Glencoe's <i>Algebra 1</i> ©2003 page 302-304.
<ul style="list-style-type: none"> use relative frequency and probability to represent and solve problems involving uncertainty; and 	SE: 96-98, 100 #57-58, 113, 422 #43-44, 597 #70, 769-772, 773 #13-15, 774 #32-34 <i>Algebra Activity</i> 102	SE: 622-624, 626 #13-15, 630
<ul style="list-style-type: none"> use simulations to estimate probabilities. 	SE: 782-784, 785 #6-8, 786 #22-24, 787 #39-41, 792 TWE: OEA 788	See Glencoe's <i>Algebra 1</i> ©2003 page 220.
CONTENT STANDARD 8: Patterns <i>Students will discover, analyze, describe, extend and create patterns and use patterns to describe mathematical and other real-world phenomena. Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> identify, describe and generalize numerical and spatial patterns; 	SE: 233-235, 237 #45-46, 240-243, 244 #12-13, 245 #31-33 <i>Reading Mathematics</i> 239 <i>Spreadsheet Investigation</i> 232 TWE: OEA 238	SE: 325-327, 329 #21-24, 470-471, 483-485 <i>Geometry Activity</i> 324, 489 <i>Spreadsheet Investigation</i> 288

OBJECTIVES	PAGE REFERENCES	
	ALGEBRA 1	GEOMETRY
<ul style="list-style-type: none"> identify, describe and generalize patterns from data and identify and analyze patterns of change; and 	SE: 233-235, 236 #12-13, 237 #45-46, 240-243, 244 #12-13, 245 #31-33, 250 <i>Graphing Calculator Investigation</i> 418 <i>Reading Mathematics</i> 239 <i>Spreadsheet Investigation</i> 232	SE: 325-327, 329 #21-24, 470-471, 479 #16-18 <i>Spreadsheet Investigation</i> 288
<ul style="list-style-type: none"> predict and describe patterns produced by iterations, approximations, limits and fractals. 	SE: 235, 236 #8-11, 237 #45-46, 240-243, 244 #12-13, 245 #31-33 <i>Reading Mathematics</i> 239 <i>Spreadsheet Investigation</i> 232 <i>Study Tip</i> 234	SE: 325-327, 328 #14, 329 #21-24, 483-485 <i>Geometry Activity</i> 324, 489
CONTENT STANDARD 9: Algebra and Functions <i>Students will use algebraic skills and concepts, including functions, to describe real-world phenomena symbolically and graphically, and to model quantitative change.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> model and solve problems that involve varying quantities with variables, expressions, equations, inequalities, absolute values, vectors and matrices; 	SE: 43-45, 218-220, 264-266, 345-348, 352-355, 715-717 <i>Algebra Activity</i> 49 <i>Graphing Calculator Investigation</i> 224-225, 358 <i>Spreadsheet Investigation</i> 56	SE: 145-147, 149 #50-51, 282-284, 498-502, 506-508, 716, 752-753 <i>Geometry Activity</i> 88 <i>Spreadsheet Investigation</i> 695
<ul style="list-style-type: none"> model real-world phenomena using polynomial, rational, trigonometric, logarithmic and exponential functions, noting restricted domains; 	SE: 432, 435 #55-56, 439-440, 442 #36-40, 445 #3, 456 #53, 556 #3, 561-563, 626 #5, 629 #61-62	SE: 344 #3, 355 #41, 368 #17, 369 #49
<ul style="list-style-type: none"> analyze the effect of parametric changes on the graphs of functions; 	SE: 269 #59-60, 369-371 <i>Graphing Calculator Investigation</i> 265, 278-279, 375, 531-532, 556	SE: 326-327, 490-493, 495 #33-35 <i>Geometry Activity</i> 324, 501
<ul style="list-style-type: none"> translate among and use tabular, symbolic and graphical representations of equations, inequalities and functions; 	SE: 16-18, 43-45, 120-121, 205-207, 218-221, 352-355 <i>Algebra Activity</i> 49, 122 <i>Graphing Calculator Investigation</i> 224-225, 358	SE: 7 #3, 145-147, 575-577, 729, 739-743

OBJECTIVES	PAGE REFERENCES	
	ALGEBRA 1	GEOMETRY
<ul style="list-style-type: none"> develop, explain, use and analyze procedures for operating on algebraic expressions and matrices; and 	SE: 11-12, 14 #30-31, 58, 140 #67-70, 142-144, 715-717, 719 #39-41, 721 #53-57 TWE: DI 15 UM 13	SE: 94-95, 736, 752-753
<ul style="list-style-type: none"> solve equations and inequalities using graphing calculators and computers as well as appropriate paper-and-pencil techniques. 	SE: 148 #59-64, 280 #1, 535 #5 <i>Algebra Activity 127</i> <i>Graphing Calculator Investigation 224-225, 265, 333, 358</i> <i>Spreadsheet Investigation 178, 232</i>	SE: 366-367, 739-743, 750-751 <i>Geometry Software Investigation 101, 132</i> <i>Graphing Calculator Investigation 158</i> <i>Study Tip 576, 667, 703</i>
CONTENT STANDARD 10: Discrete Mathematics <i>Students will use the concepts and processes of discrete mathematics to analyze and model a variety of real-world situations that involve recurring relationships, sequences, networks, combinations and permutations.</i> <i>Educational experiences in Grades 9-12 will assure that students:</i>		
<ul style="list-style-type: none"> represent problem situations using finite graphs, matrices, sequences and recurrence relations; 	SE: 233-235, 241 #2, 242 #4, 567-570, 653 #70-73, 715-717, 718 #12-16, 719 #42-44, 721 #53-57 <i>Algebra Activity 759</i>	SE: 325-327, 328 #14, 483-485, 506-508, 752-753
<ul style="list-style-type: none"> develop, analyze, describe, invent and test algorithms; 	SE: 11-12, 74-75, 121-122, 142-144, 151, 453-454, 456 #52, 468, 546-549, 605-607	SE: 542 #46-47 <i>Construction 33, 151, 311, 425, 433</i> <i>Geometry Activity 44, 236-237, 559-560</i>
<ul style="list-style-type: none"> define and use permutations, combinations, mathematical induction and recursion to solve combinatorial and algorithmic problems; and 	SE: 233-235, 240-243, 760-763, 764 #13, 765 #36-39 <i>Reading Mathematics 768</i> TWE: OEA 238	SE: 62, 64 #4, 65 #38-40, 66 #43, 327
<ul style="list-style-type: none"> understand and use appropriate strategies to solve optimization problems. 	SE: 525-526, 529 #41-43, 537 #43-46, 543 #49, 711 #19, 723 #2, 731-733, 737-739 <i>Algebra Activity 743-744</i> <i>Graphing Calculator Investigation 729-730</i>	SE: 18 #42 See Glencoe's <i>Algebra 1</i> ©2003 pages 525-526, 731-733.

Codes Used for TWE Pages

Algebra 1

DI	Differentiated Instruction
OEA	Open-Ended Assessment
TNT	Tips for New Teachers
UM	Unlocking Misconceptions

Geometry

DI	Differentiated Instruction
OEA	Open-Ended Assessment
TNT	Tips for New Teachers