

McDougal Littell
Algebra 1 ©2007

correlated to the

Washington DC Public Schools
Learning Standards
Algebra I

NUMBER SENSE AND OPERATIONS INDICATORS

AL.N.1 Use the properties of operations on real numbers, including the associative, commutative, identity, and distributive properties, and use them to simplify calculations.

PE/TE: 8-10, 11 (#19, 32-33), 75-78, 84 (#53-56), 89-92, 96-100, 101 (#9-12), 103-107

AL.N.2 Simplify numerical expressions, including those involving integer exponents or the absolute value (e.g., $3(2^4 - 1) = 45$, $4|3 - 5| + 6 = 14$); apply such simplifications in the solution of problems.

PE/TE: 8-11, 26 (#55-57), 54 (#13-18), 57 (#1-3), 68 (#42-49)

AL.N.3 Calculate and apply ratios, proportions, rates, and percentages to solve a range of consumer and practical problems.

PE/TE: 166 (#45-52), 167 (#53-55), 180 (#33-36), 181 (#37-40), 183 (#11-14), 195 (#44, 51-52), 197 (#34-35, 37), 237 (#7), 240 (#19-21), 241 (#36-37)

AL.N.4 Use estimation to judge the reasonableness of results of computations and of solutions to problems involving real numbers, including approximate error in measurement and the approximate value of square roots. (*Reminder: This is without the use of calculators.*)

PE/TE: 111, 114 (#15-22), 115, 178, 182

AL.N.5 Understand the concept of *n*th roots of positive real numbers and of raising a positive real number to a fractional power. Use the rules of exponents also for fractional exponents.

PE/TE: 509-510

AL.N.6 Apply the set operations of union and intersection and the concept of complement, universal set, and disjoint sets, and use them to solve problems, including those involving Venn diagrams.

PE/TE: 71-72

PATTERNS, RELATIONS AND ALGEBRA INDICATORS

ALP.1 Recognize, describe, and extend patterns governed by a linear, quadratic, or exponential functional relationship or by a simple iterative process (e.g., *the Fibonacci sequence*).

PE/TE: 14, 488, 502

ALP.2 Use properties of the real number system to judge the validity of equations and inequalities and to justify every step in a sequential argument.

PE/TE: 134-138, 141-145, 148-151, 154-158, 357-358, 359 (#10-21), 363-366, 369-370, 372

ALP.3 Demonstrate an understanding of relations and functions.
Identify the domain, range, and dependent and independent variables of functions.

PE/TE: 35-40, 207, 210 (#24-27), 217-218, 219 (#26-31), 220 (#37), 221 (#40), 233 (#4-5)

ALP.4 Translate between different representations of functions and relations: graphs, equations, sets of ordered pairs (*scatter plots*), verbal, and tabular.

PE/TE: 35-40, 42, 43-48, 49-50, 51 (#8), 56 (#35-40), 57 (#16, 19), 61 (#9, 11, 17-18), 326-327, 328 (#6-7), 329 (#8, 13-14), 330 (#19), 331 (#20-21)

ALP.5 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.

PE/TE: 225-231, 235-236, 239, 243, 244-248

ALP.6 Find a linear function 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.

PE/TE: 235-237, 239 (#4-6), 283-284, 286-287, 292, 296 (#3-8), 303, 305 (#3-11), 306 (#20-22)

ALP.7 Find linear functions 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*).

PE/TE: 319-322

ALP.8 Add, subtract, and multiply polynomials with emphasis on 1st- and 2nd-degree polynomials.

PE/TE: 554-559, 562-568

A1.P.9 Demonstrate facility in symbolic manipulation of polynomial and rational expressions by rearranging and collecting terms, factoring [e.g., $a^2 - b^2 = (a + b)(a - b)$, $x^2 + 10x + 21 = (x + 3)(x + 7)$, $5x^4 + 10x^3 - 5x^2 = 5x^2(x^2 + 2x - 1)$], identifying and canceling common factors in rational expressions, and applying the properties of positive integer exponents.

PE/TE: 578 (#17-25), 579 (#40-45), 583-585, 586 (#3-17), 593-596, 599 (#1-15), 600-601, 603 (#3-24), 606-608, 610, 611 (#61-66)

A1.P.10 Divide polynomials by monomials with emphasis on 1st- and 2nd-degree polynomials.

PE/TE: 784, 788 (#3-6)

A1.P.11 Perform basic arithmetic operations with rational expressions and functions.

PE/TE: 776-779, 802-809, 812-819, 835 (#8-10, 14-19)

A1.P.12 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

PE/TE: 643, 662, 663-668, 671-676, 699 (#20-30)

A1.P.13 Solve equations and inequalities, including those involving absolute value of linear expressions (e.g., $|x - 2| > 5$), and apply to the solution of problems.

PE/TE: 134-146, 148-159, 356-374, 380-387, 390-395, 398-403, 415 (#5-7), 416 (#8-19), 417 (#20-30), 418 (#31-36), 419 (#5-25)

A1.P.14 Solve everyday problems (e.g., *compound interest and direct and inverse variation problems*) that can be modeled using linear or quadratic functions. Apply appropriate graphical or symbolic methods to the solution.

PE/TE: 253-259, 274 (#22-28), 523, 525 (#38), 527 (#47-50), 765-772

A1.P.15 Solve everyday problems (e.g., *mixture, rate, and work problems*) that can be modeled using systems of linear equations or inequalities. Apply algebraic and graphical methods to the solution.

PE/TE: 429 (#4-5), 432 (#31-33), 433 (#34-36), 437 (#4-5), 438 (#6), 440, 441 (#35-38), 449, 450 (#43-45), 450 (#43-45), 453 (#4), 456, 457 (#43-44), 458, 464, 465 (#35-41), 468 (#6), 471, 472 (#41), 473

DATA ANALYSIS, STATISTICS AND PROBABILITY INDICATORS

A1.D.1 Select, create, and interpret an appropriate graphical representation (e.g., *scatter plot, table, stem-and-leaf 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.

PE/TE: 883 (#8-9), 885 (#20-22)

