

BRONX COMMUNITY COLLEGE * CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

SYLLABUS: MTH 05 Elementary Algebra (0 credits, 6 hours)

TEXT: The Hutchison Series in Mathematics: Elementary and Intermediate Algebra, 5th Ed., Baratto, Bergman, McGraw-Hill, ISBN 978-0-07-338446-7

PREREQUISITE: MTH 01 or equivalent and RDL 01 if required. **CO-REQUISITE:** RDL 02 if required

Learning Objectives: Proficiency in operations with signed numbers, and in the solution and graphical representation of linear equations. Proficiency in polynomial operations, factoring, and the solution and graphical representation of quadratic equations. Proficiency in operations involving integer exponents and the manipulation of radical expressions.

Prealgebra Review (6 hours)

- | | |
|---|---|
| 0.1 A Review of Fractions | p.10 # 15, 31, 37, 45, 49, 57, 69, 73, 77, 79, 81, 91 |
| 0.2 Real Numbers | p.19 # 53, 55, 59 |
| 0.3 Adding and Subtracting Real Numbers | p.28 # 3, 13, 25, 29, 41, 45, 61, 63, 67, 71, 73 |
| 0.4 Multiplying and Dividing Real Numbers | p.39 # 5, 7, 23, 27, 35, 49, 51, 57, 61, 65, 67 |

From Arithmetic to Algebra Part 1 (6 hours)

- | | |
|---------------------------------------|--|
| 0.5 Exponents and Order of Operations | p.48 # 17, 19, 21, 37, 43, 51, 59, 65, 71, 73 |
| 1.1 Transition to Algebra | p.63 # 13, 17, 25, 35, 43, 49, 75, 77 |
| 1.2 Evaluating Algebraic Expressions | p. 75 # 5, 15, 21, 25, 29, 43, 51, 53, 55, 56, 59, 61, |

From Arithmetic to Algebra Part 2 (12 hours)

- | | |
|--|---|
| 1.3 Simplifying Algebraic Expressions | p.87 # 11, 20, 41, 55, 57, 63, 65, 73, 79, 81, 89 |
| 1.4 Solving Equations with the Addition Property | p.102 # 5, 15, 33, 35, 41, 43, 53, 67, 69, 71, 77 |
| 1.5 Solving Equations with the Multiplication Property | p.112 # 7, 19, 31, 37, 39, 47, 49, 53, 57, 59 |
| 1.6 Combining the Rules to Solve Equations | p.126 # 3, 11, 31, 37, 41, 43, 47, 51, 63, 75, 78, 79 |
| 1.7 Linear Inequalities | p.141 # 31, 39, 51, 65, 67, 73, 75 |
| 2.1 Formulas and Problem Solving | p.161# 13, 21, 27, 37, 41, 42, 45, 49, 51, 53, 54, 59 |

Graphing Linear Equations (10 hours)

- | | |
|--|--|
| 2.3 Two-Variable Equations | p.186# 3, 11, 13, 21, 23, 27, 29, 31 |
| 2.4 The Cartesian Coordinate System | p.196 # 1-5, 11, 13, 43, 45 |
| 3.1 Graphing Linear Functions | p.256 # 1, 5, 13, 15, 21, 23, 31, 35, 41, 45 |
| 3.2 The Slope of a Line | p.279 # 1, 5, 11, 19, 23, 25, 27, 29, 31, 33, 37 |
| 3.3 Linear Equations | p.294 # 1, 5, 7, 9, 13, 15, 23, 27, 35, 39, 51 |
| 3.5 Linear Inequalities in Two Variables | p.321 # 5, 7, 9, 13, 19 |

Systems of Linear Equations (2 hours)

- | | |
|--|--|
| 4.1 Graphing Systems of Linear Equations | p.347 # 1, 5 |
| 4.3 Systems of Equations in Two Variables (Addition/Elimination) | p.373 # 1, 3, 5, 9, 27, 31, 49, 51, 55 |

Exponents and Polynomials (8 hours)

- | | |
|---|---|
| 5.1 Positive Integer Exponents | p. 414 # 1, 3, 17, 21, 43, 53, 61, 63 |
| 5.2 Integer Exponents and Scientific Notation | p.427 # 59, 77, 81, 85, 89, 91, 97,105,109,111, 113 |
| 5.3 An Introduction to Polynomials | p.436 # 11, 25, 31, 35 |
| 5.4 Adding and Subtracting Polynomials | p. 444 # 7, 13, 17, 21, 25, 31, 37, 59 |
| 5.5 Multiplying Polynomials | p.455 # 13, 23, 27, 43, 45, 51, 63, 71, 83 |
| 5.6 Dividing Polynomials (by Monomials only) | p. 465 # 1-11 odd |

BRONX COMMUNITY COLLEGE * CITY UNIVERSITY OF NEW YORK
DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Factoring Polynomials (10 hours)

- | | | |
|-----|--|---|
| 6.1 | An Introduction to Factoring | p.486 # 1, 11, 23, 31, 41, 53, 69, 77, 79 |
| 6.2 | Factoring Special Products (Difference of Squares) | p.497 # 3, 9, 25, 37, 41 |
| 6.3 | Factoring: Trial and Error | p. 507 # 17-49 odd |
| 6.4 | Factor: The <i>ac</i> Method | p.517 # 49, 53, 59-67 odd, 71, 73, 75, 101, 103 |
| 6.6 | Factoring and Problem Solving | p.537 # 5, 9, 13, 15, 21, 27, 29, 51, 61, 67, 69, 71, 75, 119 |

Radicals and Exponents (8 hours)

- | | | |
|-----|--|--|
| 7.1 | Roots and Radicals | p.560 # 1, 3, 5, 7, 15, 35, 59, 61, 63 |
| 7.2 | Simplifying Radical Expressions (no variables) | p.573 # 3-19 odd, 41, 45, 47, 51 |
| 7.3 | Operations on Radicals (no rationalizing binomials) | p.584 # 1, 9, 11, 15, 39, 45, 55, 67 |
| 7.6 | Complex Numbers (<i>i</i> notation only, no operations) | p.611 # 1-9 odd |

Quadratic Functions (10 hours)

- | | | |
|-----|---|--|
| 8.1 | Solving Quadratic Equations (Completing the Square) | p.633 # 1, 5, 9, 13, 33, 37 |
| 8.2 | The Quadratic Formula | p.661 # 5, 11, 21-35 odd, 43, 49, 63, 69, 75 |
| 8.3 | An Introduction to Parabolas | p.665 # 1-8, 25-35 odd |

Revised on 7/2013 by SZ, KT, EA
2/14 EA