

Algebra 2 Honors - Expectations for Exit Exam

Text Book Information:

Big Ideas Math – Algebra 2 Authors: Ron Larson & Laurie Boswell ISBN-13: 978-1-60840-840-5
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This Exit Exam will be limited to 90 minutes. Students will be allowed to use a calculator on parts of the test. The calculator cannot have Wi-Fi capabilities (no phones or tablet apps). Calculators with graphing capabilities are prohibited during the graphing section of the test. The exam contains both multiple choice and constructed response items. Partial credit may be earned on some items. You must score 77% or more to pass the exam and be placed into Precalculus Honors for the following school year. Test scores are reported as pass/fail. The test is secure and will not be returned to the student or parent for review.

Content Covered in the Course:

The Troy School District curriculum is based on the Michigan Mathematics Standards. The table below gives a brief description of the topics covered in the Algebra 2 textbook and their correlation to the tested standards. For a detailed explanation of the content expectations, see the complete list of Michigan Mathematics Standards for High School:

http://www.michigan.gov/documents/mde/K-12_MI_Math_Standards_REV_470033_7_550413_7.pdf

The Exit Exam is a comprehensive assessment of the full Troy School District Curriculum and Michigan Mathematics Standards. Students should be prepared to demonstrate their proficiency on all content.

| Content Overview | Michigan Standard(s) Correlation |
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| Chapter 1: Linear Functions | |
| 1.1 Parent Functions and Transformations | HSF-BF.B.3 |
| 1.2 Transformations of Linear and Absolute Value Functions | HSF-BF.B.3 |
| 1.3 Modeling with Linear Functions | HSA-CED.A.2, HSF-IF.C.9, HSF-BF.A.1a, HSF-LE.A.2, HSS-ID.B.6a |
| 1.4 Solving Linear Systems | HSA-CED.A.3, HSA-REI.C.6 |
| Chapter 2: Quadratic Functions | |
| 2.1 Transformations of Quadratic Functions | HSF-IF.C.7c, HSF-BF.B.3 |
| 2.2 Characteristics of Quadratic Functions | HSF-IF.B.4, HSF-IF.C.7c, HSF-IF.C.9, HSA-APR.B.3 |
| 2.3 Focus of a Parabola | HSF-IF.B.4, HSF-IF.C.7c, HSG-GPE.A.2 |
| 2.4 Modeling with Quadratic Equations | HSA-CED.A.2, HSF-IF.B.6, HSF-BF.A.1a, HSS-ID.B.6a |

Content Overview

Michigan Standard(s) Correlation

Chapter 3: Quadratic Equations and Complex Numbers

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| 3.1 | Solving Quadratic Equations | HSA-SSE.A.2, HSA-REI.B.4b, HSF-IF.C.8a |
| 3.2 | Complex Numbers | HSN-CN.A.1, HSN-CN.A.2, HSN-CN.C.7, HSA-REI.B.4b |
| 3.3 | Completing the Square | HSN-CN.C.7, HSA-REI.B.4b, HSF-IF.C.8a |
| 3.4 | Using the Quadratic Formula | HSN-CN.C.7, HSA-REI.B.4b |
| 3.5 | Solving Nonlinear Systems | HSA-CED.A.3, HSA-REI.C.7, HSA-REI.D.11 |
| 3.6 | Quadratic Inequalities | HSA-CED.A.1, HSA-CED.A.3 |

Chapter 4: Polynomial Functions

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| 4.1 | Graphing Polynomial Functions | HSF-IF.B.4, HSF-IF.C.7c |
| 4.2 | Adding, Subtracting, and Multiplying Polynomials | HSA-APR.A.1, HSA-APR.C.4, HSA-APR.C.5 |
| 4.3 | Dividing Polynomials | HSA-APR.B.2, HSA-APR.D.6 |
| 4.4 | Factoring Polynomials | HSA-SSE.A.2, HSA-APR.B.2, HSA-APR.B.3 |
| 4.5 | Solving Polynomial Equations | HSA-APR.B.3 |
| 4.6 | The Fundamental Theorem of Algebra | HSN-CN.C.8, HSN-CN.C.9, HSA-APR.B.3 |
| 4.7 | Transformations of Polynomial Functions | HSF-IF.C.7c, HSF-BF.B.3 |
| 4.8 | Analyzing Graphs of Polynomial Functions | HSA-APR.B.3, HSF-IF.B.4, HSF-IF.C.7c, HSF-BF.B.3 |
| 4.9 | Modeling with Polynomial Functions | HSA-CED.A.2, HSF-BF.A.1a |

Chapter 5: Rational Exponents and Radical Functions

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| 5.1 | n th Roots and Rational Exponents | HSN-RN.A.1, HSN-RN.A.2 |
| 5.2 | Properties of Rational Exponents and Radicals | HSN-RN.A.2 |
| 5.3 | Graphing Radical Functions | HSF-IF.C.7b, HSN-BF.B.3 |
| 5.4 | Solving Radical Equations and Inequalities | HSA-REI.A.1, HSA-REI.A.2 |
| 5.5 | Performing Function Operations | HSF-BF.A.1b |
| 5.6 | Inverse of a Function | HSA-CED.A.4, HSF-BF.B.4a |

Chapter 6: Exponential and Logarithmic Functions

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| 6.1 | Exponential Growth and Decay Functions | HSA-SSE.B.3c, HSF-IF.C.7e, HSF-IF.C.8b, HSF-LE.A.2, HSF-LE.B.5 |
| 6.2 | The Natural Base e | HSF-IF.C.7e, HSF-LE.B.5 |
| 6.3 | Logarithms and Logarithmic Functions | HSF-IF.C.7e, HSF-BF.B.4a, HSF-LE.A.4 |
| 6.4 | Transformations of Exponential and Logarithmic Functions | HSF-IF.C.7e, HSF-BF.B.3 |
| 6.5 | Properties of Logarithms | HSA-SSE.A.2, HSF-LE.A.4 |
| 6.6 | Solving Exponential and Logarithmic Equations | HSA-REI.A.1, HSF-LE.A.4 |
| 6.7 | Modeling with Exponential and Logarithmic Functions | HSA-CED.A.2, HSF-BF.A.1a, HSF-LE.A.2 |

Content Overview

Michigan Standard(s) Correlation

Chapter 7: Rational Functions

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| 7.1 | Inverse Variation | HSA-CED.A.1, HSA-CED.A.2, HSA-CED.A.3 |
| 7.2 | Graphing Rational Functions | HSA-APR.D.6, HSF-BF.B.3 |
| 7.3 | Multiplying and Dividing Rational Expressions | HSA-APR.D.6, HSA-APR.D.7 |
| 7.4 | Adding and Subtracting Rational Expressions | HSA-APR.D.6, HSA-APR.D.7 |
| 7.5 | Solving Rational Equations | HSA-CED.A.4, HSA-REI.A.1, HSA-REI.A.2 |

Chapter 8: Sequences and Series

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| 8.1 | Defining and Using Sequences and Series | HSF-IF.A.3 |
| 8.2 | Analyzing Arithmetic Sequences and Series | HSF-IF.A.3, HSF-BF.A.2, HSF-LE.A.2 |
| 8.3 | Analyzing Geometric Sequences and Series | HSA-SSE.B.4, HSF-IF.A.3, HSF-BF.A.2, HSF-LE.A.2 |
| 8.4 | Finding Sums of Infinite Geometric Series | HSA-SSE.B.4 |
| 8.5 | Using Recursive Rules with Sequences | HSF-IF.A.3, HSF-BF.A.1a, HSF-BF.A.2 |

Chapter 9: Trigonometric Ratios and Functions

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| 9.1 | Right Triangle Trigonometry | HSF-TF.A.1, HSF-TF.A.2, HSF-TF.B.5, HSF-TF.C.8 |
| 9.2 | Angles and Radian Measure | HSF-TF.A.1 |
| 9.3 | Trigonometric Functions of Any Angle | HSF-TF.A.2 |
| 9.4 | Graphing Sine and Cosine Functions | HSF-IF.C.7e, HSF-BF.B.3 |
| 9.5 | Graphing Other Trigonometric Functions | HSF-IF.C.7e, HSF-BF.B.3 |
| 9.6 | Modeling with Trigonometric Functions | HSF-TF.B.5, HSF-BF.A.1a, HSA-CED.A.2 |
| 9.7 | Using Trigonometric Identities | HSF-TF.C.8 |
| 9.8 | Using Sum and Difference Formulas | HSF-TF.C.9 |

Chapter 10: Probability

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| 10.1 | Sample Spaces and Probability | HSS-CP.A.1 |
| 10.2 | Independent and Dependent Events | HSS-CP.A.1, HSS-CP.A.2, HSS-CP.A.3, HSS-CP.A.5, HSS-CP.B.6, HSS-CP.B.8 |
| 10.3 | Two-Way Tables and Probability | HSS-CP.A.4, HSS-CP.A.5 |
| 10.4 | Probability of Disjoint and Overlapping Events | HSS-CP.A.1, HSS-CP.B.7 |
| 10.5 | Permutations and Combinations | HSA-APR.C.5, HSS-CP.B.9 |
| 10.6 | Binomial Distributions | HSS-CP.B.9 |

Chapter 11: Data Analysis and Statistics

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| 11.1 | Using Normal Distributions | HSS-ID.A.4 |
| 11.2 | Populations, Samples, and Hypotheses | HSS-IC.A.1, HSS-IC.A.2 |
| 11.3 | Collecting Data | HSS-IC.A.1, HSS-IC.B.3 |
| 11.4 | Experimental Design | HSS-IC.A.1, HSS-IC.B.3, HSS-IC.B.6 |
| 11.5 | Making Inferences from Sample Surveys | HSS-IC.A.2, HSS-IC.B.4 |
| 11.6 | Making Inferences from Experiments | HSS-IC.A.2, HSS-IC.B.5 |

Students will also be expected to show proficiency in the Standards for Mathematical Practice:

- Standard 1: Make sense of problems and persevere in solving them
- Standard 2: Reason abstractly and quantitatively
- Standard 3: Construct viable arguments and critique the reasoning of others
- Standard 4: Model with mathematics
- Standard 5: Use appropriate tools strategically
- Standard 6: Attend to precision
- Standard 7: Look for and make use of structure
- Standard 8: Look for and express regularity in repeated reasoning