



# IXL Skill Alignment

Alg 2 alignment for HMH Common Core Curriculum

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# Module 1

## Analyzing Functions

Textbook section	IXL skills
<b>1.1:</b> Domain, Range, and End Behavior	
<b>1.2:</b> Characteristics of Function Graphs	<b>D.9</b> Linear functions over unit intervals >> <b>D.10</b> Average rate of change >> <b>EE.6</b> Find the equation of a regression line >>
<b>1.3:</b> Transformations of Function Graphs	<b>P.1</b> Function transformation rules >>
<b>1.4:</b> Inverses of Functions	<b>O.8</b> Identify inverse functions >> <b>O.9</b> Find values of inverse functions from tables >>

## Module 2

### Absolute Value Functions, Equations, and Inequalities

Textbook section	IXL skills	
<b>2.1:</b> Graphing Absolute Value Functions		
<b>2.2:</b> Solving Absolute Value Equations	<b>B.4</b>	Solve absolute value equations >>
	<b>B.5</b>	Graph solutions to absolute value equations >>
<b>2.3:</b> Solving Absolute Value Inequalities	<b>C.6</b>	Solve absolute value inequalities >>
	<b>C.7</b>	Graph solutions to absolute value inequalities >>

# Module 3

## Quadratic Equations

Textbook section	IXL skills	
<b>3.1:</b> Solving Quadratic Equations by Taking Square Roots	<b>J.4</b>	Solve a quadratic equation using square roots >>
<b>3.2:</b> Complex Numbers	<b>H.2</b>	Add and subtract complex numbers >>
	<b>H.4</b>	Multiply complex numbers >>
<b>3.3:</b> Finding Complex Solutions of Quadratic Equations	<b>J.9</b>	Solve a quadratic equation using the quadratic formula >>

# Module 4

## Quadratic Relations and Systems of Equations

Textbook section	IXL skills
<b>4.1:</b> Circles	<b>U.3</b> Write equations of circles in standard form from graphs >>
	<b>U.4</b> Write equations of circles in standard form using properties >>
	<b>U.5</b> Convert equations of circles from general to standard form >>
	<b>U.6</b> Find properties of circles from equations in general form >>
	<b>U.7</b> Graph circles >>
<b>4.2:</b> Parabolas	<b>T.3</b> Find the focus or directrix of a parabola >>
	<b>T.8</b> Find properties of a parabola from equations in general form >>
<b>4.3:</b> Solving Linear-Quadratic Systems	<b>E.15</b> Solve a system of linear and quadratic equations >>
<b>4.4:</b> Solving Linear Systems in Three Variables	<b>E.12</b> Solve a system of equations in three variables using substitution >>
	<b>E.13</b> Solve a system of equations in three variables using elimination >>
	<b>G.18</b> Solve a system of equations using augmented matrices >>
	<b>G.19</b> Solve a system of equations using augmented matrices: word problems >>

# Module 5

## Polynomial Functions

Textbook section	IXL skills
5.1: Graphing Cubic Functions	
5.2: Graphing Polynomial Functions	<b>K.14</b> Match polynomials and graphs >>

# Module 6

## Polynomials

Textbook section	IXL skills	
<b>6.1:</b> Adding and Subtracting Polynomials	<b>K.2</b>	Add and subtract polynomials >>
<b>6.2:</b> Multiplying Polynomials	<b>K.3</b>	Multiply polynomials >>
<b>6.3:</b> The Binomial Theorem	<b>K.16</b>	Pascal's triangle >>
	<b>K.17</b>	Pascal's triangle and the Binomial Theorem >>
	<b>K.18</b>	Binomial Theorem I >>
<b>6.4:</b> Factoring Polynomials	<b>I.5</b>	Factor by grouping >>
	<b>I.6</b>	Factor sums and differences of cubes >>
	<b>I.7</b>	Factor polynomials >>
<b>6.5:</b> Dividing Polynomials	<b>K.4</b>	Divide polynomials using long division >>
	<b>K.5</b>	Divide polynomials using synthetic division >>
	<b>K.6</b>	Evaluate polynomials using synthetic division >>

# Module 7

## Polynomial Equations

Textbook section	IXL skills	
<b>7.1:</b> Finding Rational Solutions of Polynomial Equations	<b>K.8</b>	Find the roots of factored polynomials >>
	<b>K.10</b>	Rational root theorem >>
<b>7.2:</b> Finding Complex Solution of Polynomial Equations	<b>K.7</b>	Solve polynomial equations >>
	<b>K.9</b>	Write a polynomial from its roots >>



# Module 8

## Rational Functions

Textbook section	IXL skills
8.1: Graphing Simple Rational Functions	
8.2: Graphing More Complicated Rational Functions	N.1 Rational functions: asymptotes and excluded values >>

## Module 9

### Rational Expressions and Equations

Textbook section	IXL skills	
<b>9.1:</b> Adding and Subtracting Rational Expressions	<b>N.6</b>	<a href="#">Add and subtract rational expressions &gt;&gt;</a>
<b>9.2:</b> Multiplying and Dividing Rational Expressions	<b>N.5</b>	<a href="#">Multiply and divide rational expressions &gt;&gt;</a>
<b>9.3:</b> Solving Rational Equations	<b>N.7</b>	<a href="#">Solve rational equations &gt;&gt;</a>

# Module 10

## Radical Functions

Textbook section	IXL skills
<b>10.1:</b> Inverses of Simple Quadratic and Cubic Functions	
<b>10.2:</b> Graphing Square Root Functions	<b>L.12</b> <a href="#">Domain and range of radical functions &gt;&gt;</a>
<b>10.3:</b> Graphing Cube Root Functions	

# Module 11

## Radical Expressions and Equations

Textbook section	IXL skills	
<b>11.1:</b> Radical Expressions and Rational Exponents	<b>M.1</b>	Evaluate rational exponents >>
	<b>M.4</b>	Power rule >>
<b>11.2:</b> Simplifying Radical Expressions	<b>L.4</b>	Simplify radical expressions with variables I >>
	<b>L.5</b>	Simplify radical expressions with variables II >>
	<b>L.7</b>	Multiply radical expressions >>
	<b>L.8</b>	Divide radical expressions >>
	<b>M.5</b>	Simplify expressions involving rational exponents I >>
	<b>M.6</b>	Simplify expressions involving rational exponents II >>
<b>11.3:</b> Solving Radical Equations	<b>L.13</b>	Solve radical equations >>

# Module 12

## Sequences and Series

Textbook section	IXL skills
<b>12.1:</b> Arithmetic Sequences	<b>BB.1</b> Find terms of an arithmetic sequence >> <b>BB.6</b> Write a formula for an arithmetic sequence >>
<b>12.2:</b> Geometric Sequences	<b>BB.5</b> Classify formulas and sequences >> <b>BB.7</b> Write a formula for a geometric sequence >> <b>BB.8</b> Write a formula for a recursive sequence >>
<b>12.3:</b> Geometric Series	<b>BB.15</b> Partial sums of geometric series >>

# Module 13

## Exponential Functions

Textbook section	IXL skills
<b>13.1:</b> Exponential Growth Functions	<b>S.13</b> Compound interest: word problems >>
<b>13.2:</b> Exponential Decay Functions	<b>S.3</b> Match exponential functions and graphs >>
	<b>S.12</b> Exponential growth and decay: word problems >>
<b>13.3:</b> The Base e	
<b>13.4:</b> Compound Interest	<b>S.13</b> Compound interest: word problems >>
	<b>S.14</b> Continuously compounded interest: word problems >>

# Module 14

## Modeling with Exponential and Other Functions

Textbook section	IXL skills
<b>14.1:</b> Fitting Exponential Functions to Data	
<b>14.2:</b> Choosing Among Linear, Quadratic, and Exponential Models	

# Module 15

## Logarithmic Functions

Textbook section	IXL skills
<b>15.1:</b> Defining and Evaluating a Logarithmic Function	<b>R.1</b> Convert between exponential and logarithmic form: rational bases >> <b>S.1</b> Domain and range of exponential and logarithmic functions >>
<b>15.2:</b> Graphing Logarithmic Functions	



# Module 16

## Logarithmic Properties and Exponential Equations

Textbook section	IXL skills
<b>16.1:</b> Properties of Logarithms	<b>R.6</b> Change of base formula >>
	<b>R.7</b> Identify properties of logarithms >>
	<b>R.8</b> Product property of logarithms >>
	<b>R.9</b> Quotient property of logarithms >>
	<b>R.10</b> Power property of logarithms >>
	<b>R.11</b> Properties of logarithms: mixed review >>
	<b>R.12</b> Evaluate logarithms: mixed review >>
<b>16.2:</b> Solving Exponential Equations	<b>S.5</b> Solve exponential equations using common logarithms >>
	<b>S.6</b> Solve exponential equations using natural logarithms >>

# Module 17

## Unit-Circle Definition of Trigonometric Functions

Textbook section	IXL skills	
<b>17.1:</b> Angles of Rotation and Radian Measure	<b>X.1</b>	Convert between radians and degrees >>
	<b>X.5</b>	Coterminal angles >>
<b>17.2:</b> Defining and Evaluating the Basic Trigonometric Functions	<b>Y.2</b>	Special right triangles >>
	<b>Y.7</b>	Sin, cos, and tan of special angles >>
	<b>Y.9</b>	Find trigonometric functions using a calculator >>
<b>17.3:</b> Using a Pythagorean Identity		

# Module 18

## Graphing Trigonometric Functions

Textbook section	IXL skills	
<b>18.1:</b> Stretching, Compressing, and Reflecting Sine and Cosine Graphs	<b>Z.1</b>	Find properties of sine functions >>
	<b>Z.5</b>	Find properties of cosine functions >>
<b>18.2:</b> Stretching, Compressing, and Reflecting Tangent Graphs		
<b>18.3:</b> Translating Trigonometric Graphs	<b>Z.2</b>	Write equations of sine functions from graphs >>
	<b>Z.6</b>	Write equations of cosine functions from graphs >>
	<b>Z.9</b>	Graph sine and cosine functions >>
<b>18.4:</b> Fitting Sine Functions to Data		

# Module 19

## Introduction to Probability

Textbook section	IXL skills
<b>19.1:</b> Probability and Set Theory	<b>CC.2</b> Calculate probabilities of events >>
<b>19.2:</b> Permutations and Probability	<b>CC.3</b> Counting principle >>
<b>19.3:</b> Combinations and Probability	<b>CC.4</b> Combinations and permutations >>
	<b>CC.5</b> Find probabilities using combinations and permutations >>
<b>19.4:</b> Mutually Exclusive and Overlapping Events	<b>CC.6</b> Find probabilities using two-way frequency tables >>

# Module 20

## Conditional Probability and Independence of Events

Textbook section	IXL skills
<b>20.1:</b> Conditional Probability	<b>CC.9</b> Find conditional probabilities >> <b>CC.11</b> Find conditional probabilities using two-way frequency tables >>
<b>20.2:</b> Independent Events	<b>CC.10</b> Independence and conditional probability >>
<b>20.3:</b> Dependent Events	<b>CC.7</b> Identify independent events >> <b>CC.8</b> Probability of independent and dependent events >>

# Module 21

## Probability and Decision Making

Textbook section	IXL skills
<b>21.1:</b> Using Probability to Make Fair Decisions	
<b>21.2:</b> Analyzing Decisions	

# Module 22

## Gathering and Displaying Data

Textbook section	IXL skills
<b>22.1:</b> Data-Gathering Techniques	<b>EE.1</b> <a href="#">Identify biased samples &gt;&gt;</a>
<b>22.2:</b> Shape, Center, and Spread	

# Module 23

## Data Distributions

Textbook section	IXL skills
<b>23.1:</b> Probability Distributions	<b>DD.1</b> Identify discrete and continuous random variables >> <b>DD.2</b> Write a discrete probability distribution >> <b>DD.10</b> Find probabilities using the binomial distribution >>
<b>23.2:</b> Normal Distributions	<b>DD.11</b> Find probabilities using the normal distribution I >> <b>DD.12</b> Find probabilities using the normal distribution II >> <b>DD.13</b> Find z-values >>
<b>23.3:</b> Sampling Distributions	<b>DD.14</b> Distributions of sample means >>



# Module 24

## Making Inferences from Data

Textbook section	IXL skills
<b>24.1:</b> Confidence Intervals and Margins of Error	<b>EE.9</b> Find confidence intervals for population means >>
	<b>EE.10</b> Find confidence intervals for population proportions >>
	<b>EE.11</b> Interpret confidence intervals for population means >>
<b>24.2:</b> Surveys, Experiments, and Observational Studies	<b>EE.12</b> Experiment design >>
<b>24.3:</b> Determining the Significance of Experimental Results	<b>EE.13</b> Analyze the results of an experiment using simulations >>