



IXL Skill Alignment

Algebra 2 alignment for enVision Mathematics Common Core



Use IXL's interactive skill plan to get up-to-date skill alignments, assign skills to your students, and track progress.

www.ixl.com/math/skill-plans/envision-mathematics-2018-common-core-algebra-2

This document includes the IXL® skill alignments to Savvas Learning Company's **enVision Mathematics Common Core** curriculum. IXL provides skill alignments as a service to teachers, students, and parents. The skill alignments are provided by IXL and are not affiliated with, sponsored by, reviewed, approved or endorsed by Savvas Learning Company or any other third party. IXL® and IXL Learning® are registered trademarks of IXL Learning, Inc. All other intellectual property rights (e.g., unregistered and registered trademarks and copyrights) are the property of their respective owners.

Visit IXL.com for more information

IXL Learning © 2021

Topic 1

Linear Functions and Systems

Textbook section

IXL skills

Lesson 1-1: Key Features of Functions

Domain and range

1. Domain and range of absolute value functions: graphs Y8C
2. Domain and range of absolute value functions: equations FXV
3. Domain and range 78A

Key features

4. Linear functions over unit intervals XGR

Average rate of change

5. Average rate of change PHD
6. Find the slope of a linear function W67

Lesson 1-2: Transformation of Functions

Translations

1. Translations of functions F6J

Reflections

2. Reflections of functions PHV

Dilations

3. Dilations of functions NNY

Mixed transformations

4. Transformations of functions RSN
5. Describe function transformations KT8
6. Function transformation rules R7X
7. Transformations of absolute value functions FYJ

Lesson 1-3: Piecewise-Defined Functions

Lesson 1-4: Arithmetic Sequences and Series

Sequences

1. Find terms of an arithmetic sequence C8R
2. Write a formula for an arithmetic sequence H82

Series

3. Find the sum of an arithmetic series W6A

Lesson 1-5: Solving Equations and Inequalities by Graphing**Sketch two parts separately**

1. Solve a system of equations by graphing M69
2. Solve systems of linear inequalities by graphing U5D
3. Solve systems of linear and absolute value inequalities by graphing 47Y

Solve equation in two parts

4. Solve a system of linear and quadratic equations: parabolas HVZ

Also consider

- Graph a linear function LSG
- Graph a two-variable linear inequality RWU
- Graph an absolute value function TD2
- Graph a quadratic function S9G

Lesson 1-6: Linear Systems**Solutions to systems of equations**

1. Is (x, y) a solution to the system of equations? NJP

Graphing

2. Solve a system of equations by graphing: word problems T86

Substitution

3. Solve a system of equations using substitution BW5
4. Solve a system of equations using substitution: word problems DKW

Elimination

5. Solve a system of equations using elimination 2CN
6. Solve a system of equations using elimination: word problems ARY

Any method

7. Solve a system of equations using any method FT6

- Solve a system of equations using any method: word problems ELG

System of inequalities

- Is (x, y) a solution to the system of inequalities? RFY

System of equations in three variables

- Solve a system of equations in three variables using substitution X8H
- Solve a system of equations in three variables using elimination 9S5
- Determine the number of solutions to a system of equations in three variables XAX

Lesson 1-7: Solve Linear Equations using Matrices

- Solve a system of equations using augmented matrices RCS
 - Solve a system of equations using augmented matrices: word problems QX5
-

Topic 2

Quadratic Functions and Equations

Textbook section

IXL skills

Lesson 2-1: Vertex Form of a Quadratic Function

1. Transformations of quadratic functions KQL
2. Characteristics of quadratic functions: graphs WMS
3. Write a quadratic function from its vertex and another point URV

Lesson 2-2: Standard Form of a Quadratic Function

1. Characteristics of quadratic functions: equations L8C
2. Graph quadratic functions in standard form HMW

Lesson 2-3: Factored Form of a Quadratic Function

1. Write a quadratic function from its zeroes G2Q
2. Solve a quadratic equation using the zero product property TRU
3. Solve a quadratic equation by factoring CJC
4. Factor quadratics UB5
5. Match quadratic functions and graphs QCE

Lesson 2-4: Complex Numbers and Operations

Solve quadratic functions

1. Solve a quadratic equation using square roots FG7

Complex numbers

2. Introduction to complex numbers 5VV
3. Add and subtract complex numbers JVF
4. Multiply complex numbers VZ8
5. Complex conjugates 7U5
6. Divide complex numbers MBM

Lesson 2-5: Completing the Square

1. Complete the square 9MW
2. Solve a quadratic equation by completing the square NPH



Lesson 2-6: The Quadratic Formula

1. Solve a quadratic equation using the quadratic formula YQH
2. Using the discriminant QHK

Lesson 2-7: Linear-Quadratic Systems

1. Solve a system of linear and quadratic equations: parabolas HVZ
-

Topic 3

Polynomial Functions

Textbook section	IXL skills
Lesson 3-1: Graphing Polynomial Functions	<ol style="list-style-type: none"> 1. Polynomial vocabulary DYB 2. Domain and range of polynomials Y86
Lesson 3-2: Adding, Subtracting, and Multiplying Polynomials	<ol style="list-style-type: none"> 1. Add and subtract polynomials 9A3 2. Multiply polynomials 8GN
Lesson 3-3: Polynomial Identities	<ol style="list-style-type: none"> 1. Factor sums and differences of cubes NJV 2. Factor using a quadratic pattern SZN 3. Pascal's triangle G7Y 4. Pascal's triangle and the Binomial Theorem A7M 5. Binomial Theorem I CWS 6. Binomial Theorem II NEU
Lesson 3-4: Dividing Polynomials	<p>Long division</p> <ol style="list-style-type: none"> 1. Divide polynomials using long division YN5 <p>Synthetic division</p> <ol style="list-style-type: none"> 2. Divide polynomials using synthetic division D6D 3. Evaluate polynomials using synthetic division CHC
Lesson 3-5: Zeros of Polynomials	<p>Graph polynomials</p> <ol style="list-style-type: none"> 1. Match polynomials and graphs XJU 2. Find the roots of factored polynomials PVM <p>Solve polynomials</p> <ol style="list-style-type: none"> 3. Solve polynomial equations ZCH <p>Factor polynomials</p> <ol style="list-style-type: none"> 4. Factor out a monomial NMZ 5. Factor by grouping HVT 6. Factor polynomials A2W <p>Polynomial inequalities</p> <ol style="list-style-type: none"> 7. Solve quadratic inequalities 56V

Lesson 3-6: Theorems About Roots of Polynomial Equations

1. Rational root theorem FCX
2. Fundamental Theorem of Algebra YS8
3. Complex conjugate theorem 5WU
4. Conjugate root theorems EYD
5. Write a polynomial from its roots BTU

Lesson 3-7: Transformation of Polynomial Functions

Topic 4

Rational Functions

Textbook section	IXL skills
Lesson 4-1: Inverse Variation and the Reciprocal Function	1. Write and solve inverse variation equations PNY
Lesson 4-2: Graphing Rational Functions	1. Rational functions: asymptotes and excluded values 7JJ
Lesson 4-3: Multiplying and Dividing Rational Expressions	1. Simplify rational expressions 37N 2. Multiply and divide rational expressions MG2
Lesson 4-4: Adding and Subtracting Rational Expressions	1. Add and subtract rational expressions FEX
Lesson 4-5: Solving Rational Equations	Solve equations 1. Solve rational equations CHP Evaluate expressions 2. Evaluate rational expressions I RHV 3. Evaluate rational expressions II 9KA

Topic 5

Rational Exponents and Radical Functions

Textbook section	IXL skills
Lesson 5-1: nth Roots, Radicals, and Rational Exponents	<ol style="list-style-type: none"> 1. Roots of integers EUH 2. Roots of rational numbers HNE 3. Evaluate rational exponents KJX 4. Nth roots U42
Lesson 5-2: Properties of Exponents and Radicals	<p>Properties of exponents</p> <ol style="list-style-type: none"> 1. Multiplication with rational exponents LMC 2. Division with rational exponents AN5 3. Power rule V2J 4. Simplify expressions involving rational exponents I 2VX 5. Simplify expressions involving rational exponents II U96 <p>Properties of radicals</p> <ol style="list-style-type: none"> 6. Multiply radical expressions PUM 7. Divide radical expressions CCU 8. Add and subtract radical expressions L46 <p>Simplify radical expressions</p> <ol style="list-style-type: none"> 9. Simplify radical expressions using the distributive property QAX 10. Simplify radical expressions using conjugates FX7 11. Simplify radical expressions with variables I LQX 12. Simplify radical expressions with variables II QGZ
Lesson 5-3: Graphing Radical Functions	<ol style="list-style-type: none"> 1. Domain and range of radical functions HR9
Lesson 5-4: Solving Radical Equations	<ol style="list-style-type: none"> 1. Solve radical equations EHE

Lesson 5-5: Function Operations**Function operations**

1. Add and subtract functions QQD
2. Multiply functions 49K
3. Divide functions 9PH

Compositions of functions

4. Composition of linear functions: find a value MFV
5. Composition of linear functions: find an equation RSP
6. Composition of linear and quadratic functions: find a value P9T
7. Composition of linear and quadratic functions: find an equation EKJ

Lesson 5-6: Inverse Relations and Functions

1. Identify inverse functions 9KT
2. Find values of inverse functions from tables YLX
3. Find values of inverse functions from graphs Z5C
4. Find inverse functions and relations ZRQ

Topic 6

Exponential and Logarithmic Functions

Textbook section	IXL skills
Lesson 6-1: Key Features of Exponential Functions	<ol style="list-style-type: none"> 1. Match exponential functions and graphs PCX 2. Exponential growth and decay: word problems TYQ
Lesson 6-2: Exponential Models	<ol style="list-style-type: none"> 1. Compound interest: word problems YJW 2. Continuously compounded interest: word problems 5GU
Lesson 6-3: Logarithms	<p>Convert between exponential and logarithmic form</p> <ol style="list-style-type: none"> 1. Convert between exponential and logarithmic form: rational bases TPA 2. Convert between natural exponential and logarithmic form 5KM 3. Convert between exponential and logarithmic form: all bases 8RK <p>Evaluate logarithms</p> <ol style="list-style-type: none"> 4. Evaluate logarithms GBR 5. Evaluate natural logarithms XG9
Lesson 6-4: Logarithmic Functions	<ol style="list-style-type: none"> 1. Domain and range of exponential and logarithmic functions GLL
Lesson 6-5: Properties of Logarithms	<p>Properties of logarithms</p> <ol style="list-style-type: none"> 1. Identify properties of logarithms N59 2. Product property of logarithms CW9 3. Quotient property of logarithms ZNT 4. Power property of logarithms 7T3 5. Properties of logarithms: mixed review 5LL 6. Evaluate logarithms using properties RNH <p>Change of base</p> <ol style="list-style-type: none"> 7. Change of base formula J2R

Lesson 6-6: Exponential and Logarithmic Equations**Solve exponential equations**

1. Solve exponential equations using common logarithms 9F2
2. Solve exponential equations using natural logarithms KVL

Solve logarithms

3. Solve logarithmic equations I BXU
4. Solve logarithmic equations II RLX

Lesson 6-7: Geometric Sequences and Series**Introduction to sequences**

1. Find terms of a geometric sequence BHV
2. Classify formulas and sequences 2UZ

Explicit and recursive formulas

3. Evaluate explicit formulas for sequences NV5
4. Write a formula for a geometric sequence Q5V
5. Evaluate recursive formulas for sequences QB9
6. Write a formula for a recursive sequence ZAH

Mixed practice

7. Sequences: mixed review 2MX

Series

8. Identify arithmetic and geometric series HS9
9. Find the sum of a finite geometric series 9KQ
10. Introduction to sigma notation DHQ

Topic 7

Trigonometric Functions

Textbook section	IXL skills
Lesson 7-1: Trigonometric Functions and Acute Angles	<ol style="list-style-type: none"> 1. Trigonometric ratios: sin, cos, and tan P QJ 2. Trigonometric ratios: find a side length MHJ 3. Special right triangles NUF 4. Trigonometric ratios: csc, sec, and cot P82
Lesson 7-2: Angles and the Unit Circle	<ol style="list-style-type: none"> 1. Convert between radians and degrees EDC 2. Radians and arc length UA5 3. Reference angles BRP 4. Coterminal angles 7CV
Lesson 7-3: Trigonometric Functions and Real Numbers	<ol style="list-style-type: none"> 1. Find trigonometric ratios using the unit circle BEM 2. Sin, cos, and tan of special angles 6H8 3. Csc, sec, and cot of special angles PAE
Lesson 7-4: Graphing Sine and Cosine Functions	<p>Sine functions</p> <ol style="list-style-type: none"> 1. Find properties of sine functions 2EK 2. Write equations of sine functions from graphs FGW 3. Write equations of sine functions using properties JDH 4. Graph sine functions 9NS <p>Cosine functions</p> <ol style="list-style-type: none"> 5. Find properties of cosine functions F8Y 6. Write equations of cosine functions from graphs 4G8 7. Write equations of cosine functions using properties N6X 8. Graph cosine functions KXG <p>Mixed practice</p> <ol style="list-style-type: none"> 9. Graph sine and cosine functions A7V 10. Symmetry and periodicity of trigonometric functions YBJ

Lesson 7-5: Graphing Other Trigonometric Functions**Lesson 7-6:** Translating Trigonometric Functions

1. Graph translations of sine functions LCN
2. Graph translations of cosine functions M5K
3. Graph translations of sine and cosine functions 9D7

Topic 8

Trigonometric Equations and Identities

Textbook section

IXL skills

Lesson 8-1: Solving Trigonometric Equations with Inverses

Inverses of trigonometric functions

1. Inverses of sin, cos, and tan JVB
2. Inverses of csc, sec, and cot NJD

Trigonometric equations

3. Solve trigonometric equations I CQB
4. Solve trigonometric equations II SNX

Solve for the unknown

5. Trigonometric ratios: find an angle measure 84G
6. Solve a right triangle DPP

Lesson 8-2: Laws of Sines and Laws of Cosine

1. Law of Sines BSY
2. Law of Cosines ZQB
3. Solve a triangle YPP

Lesson 8-3: Trigonometric Identities

1. Trigonometric identities I XJJ
2. Trigonometric identities II F8F

Lesson 8-4: The Complex Plane

Graph in the complex plane

1. Introduction to the complex plane J8S
2. Graph complex numbers ABL

Operations in the complex plane

3. Addition in the complex plane VRV
4. Subtraction in the complex plane 2FN

Midpoint and distance

5. Midpoints in the complex plane 79E
6. Distance in the complex plane MCD

Lesson 8-5: Polar Form of Complex Numbers

1. Find the modulus and argument of a complex number 3Y5
2. Convert complex numbers from rectangular to polar form LCP

3. Convert complex numbers from polar to rectangular form PVD
 4. Convert complex numbers between rectangular and polar form JGA
-

Topic 9

Conic Sections

Textbook section

Lesson 9-1: Parabolas

IXL skills

Properties of parabolas

1. Identify the direction a parabola opens HHX
2. Find the vertex of a parabola 2NE
3. Find the focus or directrix of a parabola TNG
4. Find the axis of symmetry of a parabola AAY
5. Find properties of a parabola from equations in general form B7U

Write equations of parabolas

6. Write equations of parabolas in vertex form from graphs C6U
7. Write equations of parabolas in vertex form using properties EPR

Graph parabolas

8. Graph parabolas YNJ

Lesson 9-2: Circles

Properties of circles

1. Find the center of a circle U6E
2. Find the radius or diameter of a circle 5Q2
3. Find properties of circles from equations in general form 2PA

Write equations of circles

4. Write equations of circles in standard form from graphs ZLA
5. Write equations of circles in standard form using properties SHN

Convert equations of circles

6. Convert equations of circles from general to standard form D2H

Graph circles

7. Graph circles 2PL

Lesson 9-3: Ellipses**Properties of ellipses**

1. Find the center, vertices, or co-vertices of an ellipse Z2U
2. Find the length of the major or minor axes of an ellipse YE2
3. Find the foci of an ellipse 86P
4. Find properties of ellipses from equations in general form S7E

Write equations of ellipses

5. Write equations of ellipses in standard form from graphs HRR
6. Write equations of ellipses in standard form using properties 6W9

Lesson 9-4: Hyperbolas**Properties of hyperbolas**

1. Find the center of a hyperbola MN7
2. Find the vertices of a hyperbola DCW
3. Find the length of the transverse or conjugate axes of a hyperbola BYZ
4. Find the equations for the asymptotes of a hyperbola 49W
5. Find the foci of a hyperbola GNS
6. Convert equations of hyperbolas from general to standard form PFG
7. Find properties of hyperbolas from equations in general form RME

Write equations of hyperbolas

8. Write equations of hyperbolas in standard form from graphs MND
9. Write equations of hyperbolas in standard form using properties 47M

Topic 10

Matrices

Textbook section

IXL skills

Lesson 10-1: Operations with Matrices

1. Add and subtract matrices QFX
2. Multiply a matrix by a scalar 72T
3. Add and subtract scalar multiples of matrices Xfv
4. Matrix operation rules XcW

Lesson 10-2: Matrix Multiplication

1. Multiply two matrices T64
2. Simplify matrix expressions GCE
3. Properties of matrices RA5

Lesson 10-3: Vectors

Introduction to vectors

1. Find the magnitude of a vector Xv9
2. Find the component form of a vector XLQ
3. Find the direction angle of a vector RTR

Add vectors

4. Graph a resultant vector using the triangle method LBY
5. Graph a resultant vector using the parallelogram method 9E3
6. Add vectors KKG
7. Find the magnitude and direction of a vector sum QCS

Subtract vectors

8. Subtract vectors 64N

Multiply a vector by a scalar

9. Multiply a vector by a scalar WNC
10. Find the magnitude of a vector scalar multiple QM6
11. Determine the direction of a vector scalar multiple YZ5

Lesson 10-4: Inverses and Determinants

1. Determinant of a matrix KLQ
 2. Is a matrix invertible? M8R
 3. Inverse of a matrix ZAA
 4. Identify inverse matrices VB6
-

Lesson 10-5: Inverse Matrices and Systems of Equations

1. Solve matrix equations QU8
 2. Solve matrix equations using inverses Y6B
-

Topic 11

Data Analysis and Statistics

Textbook section	IXL skills
Lesson 11-1: Statistical Questions and Variables	
Lesson 11-2: Statistical Studies and Sampling Methods	<ol style="list-style-type: none">1. Identify biased samples CH72. Experiment design BKR
Lesson 11-3: Data Distributions	<ol style="list-style-type: none">1. Variance and standard deviation V5H
Lesson 11-4: Normal Distributions	<ol style="list-style-type: none">1. Find confidence intervals for population means JVK2. Interpret confidence intervals for population means MNM3. Find z-values PAJ4. Find values of normal variables 9B3
Lesson 11-5: Margin of Error	
Lesson 11-6: Testing Hypotheses from Experiments	<ol style="list-style-type: none">1. Analyze the results of an experiment using simulations RLB

Topic 12

Probability

Textbook section

IXL skills

Lesson 12-1: Probability Events

Introduction to probability

1. Introduction to probability 9QC
2. Calculate probabilities of events QRS

Independent and dependent events

3. Identify independent events RTZ
4. Probability of independent and dependent events X5U

Lesson 12-2: Conditional Probability

1. Find conditional probabilities 2M4
2. Independence and conditional probability AJC
3. Find conditional probabilities using two-way frequency tables HGC

Lesson 12-3: Permutations and Combinations

1. Counting principle ZUV
2. Combinations and permutations UAB
3. Find probabilities using combinations and permutations SVX

Lesson 12-4: Probability Distributions

Write probability distributions

1. Write a discrete probability distribution RH6
2. Write the probability distribution for a game of chance UFQ

Graph probability distributions

3. Graph a discrete probability distribution 5KH

Binomial distributions

4. Find probabilities using the binomial distribution ZGX

Lesson 12-5: Expected Value

1. Expected values of random variables 3K9
2. Expected values for a game of chance F2J
3. Choose the better bet 5YW

Lesson 12-6: Probability and Decision Making