IXL Skill Plan for the Florida Standards Assessments

Algebra 1 EOC

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Algebra and Modeling

Standard	IXL skills
912.A-APR.1.1 Understand that polynomials form a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.	**Model polynomials** 1. Model polynomials with algebra tiles TYV **Add and subtract polynomials** 2. Add and subtract polynomials using algebra tiles J7V 3. Add and subtract polynomials 5EK 4. Add polynomials to find perimeter 8AS **Multiply polynomials** 5. Multiply a polynomial by a monomial G2G 6. Multiply two binomials using algebra tiles WR5 7. Multiply two binomials M7Q 8. Multiply two binomials: special cases 9JN 9. Multiply polynomials 58A
912.A-CED.1.1 Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational, absolute, and exponential functions. *Also assesses:* **912.A-REI.2.3** Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **912.A-CED.1.4** Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.	**Write equations** 1. Write variable equations YVW 2. Model and solve linear equations using algebra tiles GRH 3. Write and solve linear equations that represent diagrams GBC **Solve linear equations** 4. Solve one-step linear equations TXJ 5. Solve two-step linear equations QAK 6. Solve advanced linear equations 28N 7. Solve linear equations with variables on both sides 7S7 8. Solve linear equations: complete the solution EVP 9. Solve linear equations: mixed review DN6 **Write inequalities** 10. Write inequalities from graphs SEK 11. Write compound inequalities from graphs 6UV

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Solve inequalities

12. Identify solutions to inequalities 5UE
13. Solve one-step linear inequalities: addition and subtraction RZV
14. Solve one-step linear inequalities: multiplication and division BRJ
15. Solve one-step linear inequalities EEX
16. Solve two-step linear inequalities NPZ
17. Solve advanced linear inequalities 9K8
18. Solve compound inequalities GXA

Rearrange formulas

19. Rearrange multi-variable equations WSJ

Word problems

20. Solve one-step and two-step linear equations: word problems UFG
21. Consecutive integer problems HDF
22. Rate of travel: word problems 2C8
23. Weighted averages: word problems 2TQ

912.A-CED.1.2 Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales.

Also assesses:

912.A-REI.3.5 Prove that, given a system of two equations in two variables, replacing one equation by the sum of that equation and a multiple of the other produces a system with the same solutions.

912.A-REI.3.6 Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables.

912.A-REI.4.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

Slope-intercept form

1. Slope-intercept form: graph an equation UWB
2. Slope-intercept form: write an equation from a graph 9GW
3. Slope-intercept form: write an equation A42
4. Slope-intercept form: write an equation from a table SSE
5. Slope-intercept form: write an equation from a word problem HWM
6. Write and solve two-variable linear equations: word problems 9RQ

Standard form

7. Write equations in standard form ESP
8. Standard form: graph an equation U6U

Point-slope form

9. Point-slope form: graph an equation F8H
10. Point-slope form: write an equation PPE

Quadratic functions

11. Graph quadratic functions in vertex form C7T

Linear, quadratic, and exponential functions

12. Write linear, quadratic, and exponential functions from tables AFA

Absolute value functions

13. Graph an absolute value function TD2

Solutions to a system of equations

14. Is (x, y) a solution to the system of equations? LRL
15. Find the number of solutions to a system of equations by graphing HJW
16. Find the number of solutions to a system of equations ACN

Elimination

17. Solve a system of equations using elimination A48
18. Solve a system of equations using elimination: word problems NHR

Graphing a system

19. Solve a system of equations by graphing TSS
20. Solve a system of equations by graphing: word problems BVB

Substitution

21. Solve a system of equations using substitution 8P9
22. Solve a system of equations using substitution: word problems US9

Any method

23. Solve a system of equations using any method HLV
24. Solve a system of equations using any method: word problems GDQ

Inequalities

25. Graph a two-variable linear inequality HHP

26. Solve systems of linear inequalities by graphing SGH

912.A-CED.1.3 Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.

Systems of equations

1. Solve a system of equations by graphing: word problems BVB
2. Solve a system of equations using substitution: word problems US9
3. Solve a system of equations using elimination: word problems NHR
4. Solve a system of equations using any method: word problems GDQ

Linear inequalities

5. Write two-variable inequalities: word problems ZAY

912.A-REI.1.1 Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

1. Properties of equality H8Q
2. Identify equivalent equations XNQ
3. Solve linear equations: complete the solution EVP

912.A-REI.2.4 Solve quadratic equations in one variable.

Square roots

1. Solve a quadratic equation using square roots ERF

Factoring

2. Solve a quadratic equation using the zero product property TNM
3. Solve a quadratic equation by factoring CSS

Completing the square

4. Complete the square RD2
5. Solve a quadratic equation by completing the square XCL

Quadratic formula

6. Solve a quadratic equation using the quadratic formula XCF

912.A-REI.4.11 Explain why the x-coordinates of the points where the graphs of the equations y = f(x) and y = g(x) intersect are the solutions of the equation f(x) = g(x); find the solutions approximately, e.g., using technology to graph the functions, make tables of values, or find successive approximations. Include cases where f(x) and/or g(x) are linear, polynomial, rational, absolute value, exponential, and logarithmic functions.

Also assesses:
912.A-REI.4.10 Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

Function tables and graphs

1. Find values using function graphs QCG
2. Complete a function table from an equation Z73
3. Interpret the graph of a function: word problems STU
4. Complete a table and graph a linear function JFG

Systems of equations

5. Solve a system of equations by graphing TSS
6. Solve a system of equations by graphing: word problems BVB
7. Find the number of solutions to a system of equations by graphing HJW

912.A-SSE.2.3 Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.

Also assesses:
912.A-SSE.1.1 Interpret expressions that represent a quantity in terms of its context.
912.A-SSE.1.2 Use the structure of an expression to identify ways to rewrite it.

Linear expressions and polynomials

1. Simplify variable expressions using properties HHR
2. Simplify variable expressions involving like terms and the distributive property ZXX

Factoring quadratics

3. Factor quadratics with leading coefficient 1 S9P
4. Factor quadratics with other leading coefficients 7ED
5. Factor quadratics: special cases 56E
6. Solve a quadratic equation by factoring CSS

Completing the square

7. Complete the square RD2
8. Characteristics of quadratic functions: equations YJZ

Monomials and polynomials

9. Sort factors of variable expressions ML9
10. Powers of monomials 7Q8
11. Polynomial vocabulary MTT
12. Factor out a monomial JZL

Exponential expressions

13. Evaluate expressions using properties of exponents LRR
14. Identify equivalent expressions involving exponents II RKA
15. Evaluate an exponential function D6H

Rational expressions

16. Simplify rational expressions Q7U

Radical expressions

17. Simplify radical expressions ZFF
18. Simplify radical expressions with variables 82V
19. Simplify radical expressions involving fractions VRZ
20. Simplify radical expressions: mixed review YZC

Functions and Modeling

Standard	IXL skills
912.F-BF.2.3 Identify the effect on the graph of replacing f(x) by f(x) + k, kf(x), f(kx), and f(x + k) for specific values of k (both positive and negative); find the value of k given the graphs. Experiment with cases and illustrate an explanation of the effects on the graph using technology.	**Function transformations** 1. Transformations of linear functions C8G 2. Transformations of quadratic functions 6YS 3. Transformations of absolute value functions: translations and reflections 9TC
912.F-IF.1.2 Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. *Also assesses:* **912.F-IF.1.1** Understand that a function from one set (called the domain) to another set (called the range) assigns to each element of the domain exactly one element of the range. If f is a function and x is an element of its domain, then f(x) denotes the output of f corresponding to the input x. The graph of f is the graph of the equation y = f(x). **912.F-IF.2.5** Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.	**Interpret functions** 1. Interpret functions using everyday language U98 **Identify functions** 2. Identify functions VLL 3. Identify functions: vertical line test HLX **Independent and dependent variables** 4. Identify independent and dependent variables N55 **Exponential functions** 5. Evaluate an exponential function D6H 6. Domain and range of exponential functions: graphs ANC 7. Domain and range of exponential functions: equations DZE **Absolute value functions** 8. Complete a function table: absolute value functions 2DH 9. Domain and range of absolute value functions: graphs NV7 10. Domain and range of absolute value functions: equations FCY **Radical functions** 11. Evaluate square root functions UWC 12. Domain and range of square root functions: graphs UXG

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13. Domain and range of square root functions: equations 73C

Mixed functions

14. Find values using function graphs QCG
15. Evaluate a function R96
16. Evaluate a function: plug in an expression VNZ
17. Complete a function table from a graph HXF
18. Complete a function table from an equation Z73
19. Complete a function table: quadratic functions LFV

912.F-IF.2.4 For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship.

Also assesses:
912.F-IF.3.9 Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions).

Linear functions

1. Identify linear functions from graphs and equations VMQ
2. Identify linear functions from tables F5G
3. Find the slope of a graph E7D
4. Slope-intercept form: find the slope and y-intercept R5T
5. Slope-intercept form: graph an equation UWB
6. Complete a table and graph a linear function JFG
7. Compare linear functions: graphs and equations EA8
8. Compare linear functions: tables, graphs, and equations GD7
9. Standard form: find x- and y-intercepts 8SN
10. Slopes of parallel and perpendicular lines ADB

Exponential functions

11. Match exponential functions and graphs II 72J

Quadratic functions

12. Characteristics of quadratic functions: graphs HW8
13. Characteristics of quadratic functions: equations YJZ
14. Graph quadratic functions in vertex form C7T

Linear, quadratic, and exponential functions

15. Identify linear, quadratic, and exponential functions from graphs DHB
16. Identify linear, quadratic, and exponential functions from tables SP5

Absolute value functions

17. Graph an absolute value function TD2

912.F-IF.2.6 Calculate and interpret the average rate of change of a function (presented symbolically or as a table) over a specified interval. Estimate the rate of change from a graph.

Also assesses:
912.S-ID.3.7 Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data.

Rate of change

1. Rate of change: tables PLA

Constant of variation

2. Find the constant of variation 9TD

Slope

3. Find the slope of a graph E7D
4. Find the slope from two points MD5
5. Slope-intercept form: find the slope and y-intercept R5T

Regression lines

6. Interpret regression lines SEQ
7. Analyze a regression line of a data set 8D8

912.F-IF.3.8 Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function.

Also assesses:
912.A-APR.2.3 Identify zeros of polynomials when suitable factorizations are available, and use the zeros to construct a rough graph of the function defined by the polynomial.
912.F-IF.3.7 Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.

Linear functions

1. Slope-intercept form: graph an equation UWB
2. Standard form: graph an equation U6U
3. Point-slope form: graph an equation F8H

Quadratic functions

4. Characteristics of quadratic functions: graphs HW8
5. Graph quadratic functions in vertex form C7T
6. Solve a quadratic equation using the zero product property TNM
7. Solve a quadratic equation by factoring CSS
8. Solve a quadratic equation by completing the square XCL
9. Match quadratic functions and graphs AU8

Exponential functions

10. Evaluate an exponential function D6H

11. Match exponential functions and graphs II 72J
12. Exponential functions over unit intervals S7D

Absolute value functions

13. Graph an absolute value function TD2

912.F-LE.1.1 Distinguish between situations that can be modeled with linear functions and with exponential functions.

Also assesses:
912.F-LE.2.5 Interpret the parameters in a linear or exponential function in terms of a context.

Linear and exponential growth and decay

1. Linear functions over unit intervals L5P
2. Exponential functions over unit intervals S7D
3. Describe linear and exponential growth and decay S7T

Identify linear and exponential functions

4. Identify linear and exponential functions from tables LZF
5. Identify linear and exponential functions from graphs UEC

Word problems

6. Solve one-step and two-step linear equations: word problems UFG
7. Rate of travel: word problems 2C8
8. Exponential growth and decay: word problems UKG

912.F-LE.1.2 Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of a relationship, or two input-output pairs (include reading these from a table).

Also assesses:
912.F-BF.1.1 Write a function that describes a relationship between two quantities.
912.F-IF.1.3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers.

Linear functions

1. Slope-intercept form: write an equation from a graph 9GW
2. Slope-intercept form: write an equation A42
3. Slope-intercept form: write an equation from a table SSE
4. Slope-intercept form: write an equation from a word problem HWM
5. Write and solve two-variable linear equations: word problems 9RQ
6. Point-slope form: write an equation PPE
7. Point-slope form: write an equation from a graph LBX

Function operations

8. Add and subtract functions 45B
9. Multiply functions 8PM
10. Evaluate a function: plug in an expression VNZ

Write functions

11. Write linear, quadratic, and exponential functions from tables AFA

Sequences

12. Arithmetic sequences ALG
13. Geometric sequences HLJ
14. Evaluate variable expressions for number sequences PMN
15. Write variable expressions for geometric sequences XPC
16. Write variable expressions for arithmetic sequences 5VF
17. Number sequences: mixed review FEL

Recursive formulas

18. Evaluate recursive formulas for sequences 9YD
19. Write a formula for a recursive sequence KP9

912.F-LE.1.3 Observe using graphs and tables that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function.

Statistics and the Number System

Standard	IXL skills
912.N-RN.1.2 Rewrite expressions involving radicals and rational exponents using the properties of exponents. *Also assesses:* **912.N-RN.2.3** Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational. **912.N-RN.1.1** Explain how the definition of the meaning of rational exponents follows from extending the properties of integer exponents to those values, allowing for a notation for radicals in terms of rational exponents.	**Operations with rational exponents** 1. Evaluate integers raised to rational exponents PQH 2. Multiplication with rational exponents YG7 3. Division with rational exponents H47 4. Power rule with rational exponents QF8 **Simplify expressions with rational exponents** 5. Simplify expressions involving rational exponents 89Q **Operations with radical expressions** 6. Multiply radical expressions HMX 7. Add and subtract radical expressions DLV 8. Simplify radical expressions using conjugates TYC **Simplify radical expressions** 9. Simplify radical expressions ZFF 10. Simplify radical expressions with variables 82V 11. Simplify radical expressions involving fractions VRZ 12. Simplify radical expressions: mixed review YZC 13. Simplify radical expressions using the distributive property 28V **Rational and irrational numbers** 14. Sort rational and irrational numbers ALH 15. Classify rational and irrational numbers 3S8 16. Properties of operations on rational and irrational numbers C7S
912.S-ID.1.1 Represent data with plots on the real number line (dot plots, histograms, and box plots).	1. Create bar graphs, line graphs, and histograms EF6

912.S-ID.1.2 Use statistics appropriate to the shape of the data distribution to compare center (median, mean) and spread (interquartile range, standard deviation) of two or more different data sets.

Also assesses:
912.S-ID.1.3 Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers).

Measures of central tendency
1. Mean, median, mode, and range MHB

Quartiles
2. Calculate quartiles and interquartile range 8H9

Variance and deviation
3. Mean absolute deviation A5C
4. Variance and standard deviation HX5

Box-and-whisker plots
5. Box plots YE9

Outliers
6. Identify an outlier 87L
7. Identify an outlier and describe the effect of removing it XGC

912.S-ID.2.5 Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.

Find probabilities
1. Find probabilities using two-way frequency tables 93R
2. Find conditional probabilities using two-way frequency tables BZZ

912.S-ID.2.6 Represent data on two quantitative variables on a scatter plot, and describe how the variables are related.

Also assesses:
912.S-ID.3.8 Compute (using technology) and interpret the correlation coefficient of a linear fit.
912.S-ID.3.9 Distinguish between correlation and causation.

Scatter plots
1. Interpret a scatter plot 8BS

Correlation coefficients
2. Match correlation coefficients to scatter plots FQ7
3. Calculate correlation coefficients E8T

Regression lines
4. Write equations for lines of best fit Y2S
5. Find the equation of a regression line WJC
6. Interpret regression lines SEQ
7. Analyze a regression line of a data set 8D8
