Algebra 2
Objectives List

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Objectives List

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> ! The checkboxes on the right side below may be used to help you record student progress. For example, you can record quarterly grades, or you can indicate level of skill development (not yet begun, beginning, developing, mastered).

Lesson	Number	Objective	✔	✔	✔	✔
1	A2.1.a	Simplify an expression containing negative exponents so that all exponents are positive				
2	A2.2.a	Identify restricted values for variables in the denominator of a rational expression				
2	A2.2.b	Perform addition and subtraction of rational expressions				
2	A2.2.c	Rewrite a rational expression in simplest form				
3	A2.3.a	State the number of significant digits in a given number				
3	A2.3.b	Express answers to addition and multiplication problems using the correct number of significant digits				
3	A2.3.c	Convert numbers to and from scientific notation				
3	A2.3.d	Multiply and divide using scientific notation				
3	A2.3.e	Identify the terms in an algebraic expression				
4	A2.4.a	Define the term *radical*				
4	A2.4.b	Perform addition and subtraction operations with terms containing radicals				
4	A2.4.c	Perform multiplication and division operations with terms containing radicals				
4	A2.4.d	Simplify radical expressions by removing all square factors from under the radical sign				
4	A2.4.e	Find decimal approximations of irrational roots using a calculator				
5	A2.5.a	Represent factorization of second-order polynomials using manipulatives				
5	A2.5.b	Factor second-order polynomials into two binomial factors				
5	A2.5.c	Use manipulatives to represent factorization of second-order polynomials where the coefficient of the squared term is not 1				
5	A2.5.d	Use vertical multiplication to factor second-order polynomials where the coefficient of the squared term is not 1 into two binomial factors				

Lesson	Number	Objective	✔	✔	✔	✔
5	A2.5.*e*	Use FOIL to factor second-order polynomials into two binomial factors where the coefficient of the squared term is not 1				
5	A2.5.*f*	Represent factorization of second-order polynomials using manipulatives, where some terms are negative				
5	A2.5.*g*	Factor second-order polynomials into two binomial factors using vertical multiplication, where some terms are negative				
5	A2.5.*h*	Factor second-order polynomials into two binomial factors using FOIL, where some terms are negative				
5	A2.5.*i*	Identify common factors as the first step to factoring a polynomial				
5	A2.5.*j*	Use repeated factoring to factor a polynomial completely				
5	A2.5.*k*	Factor to solve quadratic equations				
5	A2.5.*l*	SImplify compound rational expressions				
6	A2.6.*a*	Rewrite a radical expression as a base with a fractional exponent				
6	A2.6.*b*	Rewrite a base with a fractional exponent as a radical expression				
7	A2.7.*a*	Define the imaginary number i				
7	A2.7.*b*	Simplify radicals with negative numbers by factoring out i^2 (-1)				
7	A2.7.*c*	Define a complex number as a number of the form a + bi				
7	A2.7.*d*	Perform arithmetic operations on complex numbers				
8	A2.8.*a*	Write the conjugate of a real or complex binomial				
8	A2.8.*b*	Use the conjugate to rationalize the denominator of a real or complex fraction				
9	A2.9.*a*	Write the square of a given binomial				
9	A2.9.*b*	Write the square root of a given perfect-square second-degree polynomial				
9	A2.9.*c*	Write the cube of a given binomial				
9	A2.9.*d*	Write an arbitrary number of rows of Pascal's triangle				
9	A2.9.*e*	Use Pascal's triangle to determine the coefficients for the terms of the expansion of a binomial raised to a power				
10	A2.10.*a*	Describe the pattern of exponents of terms generated when raising a binomial to any power				
10	A2.10.*b*	Combine knowledge of coefficients and exponents to raise a binomial to any power				

Lesson	Number	Objective	✔	✔	✔	✔
10	A2.10.c	Generalize knowledge of coefficients and exponents in expanded binomials, using the binomial theorem				
10	A2.10.d	Apply the binomial theorem to raise a binomial to any power				
11	A2.11.a	Complete the square in a polynomial by adding a quantity to the second or third term				
11	A2.11.b	Use completing the square as a means of solving a second-degree equation				
11	A2.11.c	Check irrational roots of a second-degree equation by using the roots to solve the equation				
12	A2.12.a	State the quadratic formula				
12	A2.12.b	Use the quadratic formula to solve quadratic equations				
13	A2.13.a	Use the discriminant to predict the nature of the solution to a quadratic equation				
14	A2.14.a	Calculate the result of a percentage markup on a base price				
14	A2.14.b	Calculate original price from percentage and markup price				
14	A2.14.c	Calculate the percentage of an element in a compound based on molecular weights				
15	A2.15.a	Manipulate a formula to isolate any variable				
16	A2.16.a	Set up a proportion based on information about relationships between two quantities				
16	A2.16.b	Solve for the unknown in a proportion				
17	A2.17.a	Create unit multipliers				
17	A2.17.b	Identify the correct unit multiplier to use in a given problem				
17	A2.17.c	Multiply by a unit multiplier to convert it from one unit to another				
17	A2.17.d	Correctly identify the number of times a unit multiplier needs to be used based on whether a conversion is in one, two, or three dimensions				
18	A2.18.a	Solve problems involving movement of one object or person				
18	A2.18.b	Solve problems involving movement of two objects or persons moving the same distance				
19	A2.19.a	Solve problems involving movement of two objects or persons moving different distances or directions				
20	A2.20.a	Find the slope and y-intercept of a line graphed on the Cartesian plane				
20	A2.20.b	Find the slope and y-intercept of a line represented by a given equation				

Lesson	Number	Objective	✔	✔	✔	✔
20	A2.20.c	Give the equation of a line graphed on the Cartesian plane				
20	A2.20.d	Describe the equation of a line as a relationship between a dependent and an independent variable				
20	A2.20.e	Find the equation in y-intercept form when given the slope and one point on a line				
20	A2.20.f	Find the slope when given two points on a line				
20	A2.20.g	Find the equation in y-intercept form when given two points on a line				
21	A2.21.a	Write the equation for a line parallel to a given line, passing through a given point				
21	A2.21.b	Write the equation for a line perpendicular to a given line, passing through a given point				
21	A2.21.c	Graph any linear inequality				
22	A2.22.a	Compute the distance between two points on a graph, using the distance formula				
22	A2.22.b	Compute the midpoint between two points on a graph, using the midpoint formula				
23	A2.23.a	State the center and radius of a circle given its equation				
23	A2.24.b	State the center and extremities of an ellipse based on its equation.				
23	A2.25.c	Explain how circles and ellipses are generated as conic sections				
23	A2.26.d	Convert any circle equation to standard form				
23	A2.27.e	Convert any ellipse equation to standard form				
24	A2.24.a	Plot points and sketch a parabola given its equation				
24	A2.24.b	Plot points and sketch a hyperbola given its equation				
24	A2.24.c	Explain how parabolas and hyperbolas are generated as conic sections				
24	A2.24.d	Estimate the coefficient of the squared term of the equation for a parabola, given its graph				
24	A2.24.e	State the equation for a parabola given the graph and three stated points on the parabola				
25	A2.25.a	Compute the axis of symmetry for any parabola, given its equation				
25	A2.25.b	Compute the vertex of any parabola, given its equation				
25	A2.25.c	Describe how the components of the standard form of the equation of a parabola affect the graph in terms of geometric transformation				

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25	*A2.25.d*	Apply parabolas to area optimization problems				
26	*A2.26.a*	Give an example of an inverse relationship				
26	*A2.26.b*	Identify an equation of the form $xy = a$ as a hyperbola				
26	*A2.26.c*	Identify an equation of the form $ay^2 - bx^2 = n^2$ as a hyperbola				
27	*A2.27.a*	Graph a pair of equations when one or both are conic				
27	*A2.27.b*	Find the solution of a system of linear or conic equations				
28	*A2.28.a*	Write a system of equations to solve coin problems				
28	*A2.28.b*	Solve a system of equations representing a coin problem				
28	*A2.28.c*	Write a system of equations to solve consecutive integer problems				
28	*A2.28.d*	Solve a system of equations representing a consecutive integer problem				
28	*A2.28.e*	Write a system of equations to solve a mixture problem				
28	*A2.28.f*	Solve a system of equations representing a mixture problem				
29	*A2.29.a*	Write an equation or system of equations to solve a problem involving age				
29	*A2.29.b*	Solve equation(s) representing a problem involving age				
29	*A2.29.c*	Write a system of equations to solve a boat-and-current problem				
29	*A2.29.d*	Solve a system of equations representing a boat-and-current problem				
30	*A2.30.a*	Solve a system of three equations				
31	*A2.31.a*	Add two or more right-angle vectors				