

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IA

Unit Name: Unit 1 Algebra Foundations

Time Frame: 12-15 days

Unit Standards

- 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. N-RN3
- Use units as a way to understand problems and to guide the solution of multistep problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. N-Q1
- Define appropriate quantities for the purpose of descriptive modeling. N-Q2
- Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. N-Q3
- Interpret expressions that represent a quantity in terms of its context.*a) Interpret parts of an expression such as terms, factors, and coefficients. b) Interpret complicated expressions by viewing one or more of their parts as a single entity. A-SSE1

Unit Essential Questions

How can you represent quantities, patterns, and relationships with algebra?
How are properties related to algebra?

Unit Essential Vocabulary

- | | |
|---------------------------|----------------|
| 1. additive inverse | 9. Real number |
| 2. algebraic expression | 10. simplify |
| 3. coefficient | 11. term |
| 4. equivalent expressions | 12. variable |
| 5. evaluate | |
| 6. integers | |
| 7. like terms | |
| 8. order of operations | |

Resources

Randall I. Charles, B. H. (2012). *Algebra 1 Common Core*. New Jersey: Pearson

Alex website

Kuta software

Assessment(s)

Bellringers – Assess student learning from the day before
Formative assessments – Assess daily work and student learning
Quizzes – assess student progress; help determine if students are ready to move on
Unit Tests – Assess student understanding

Assessment Data:

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra I A

Unit Name: Unit 2 Solving Equations

Time Frame: 12 – 15 days

Unit Standards	<ul style="list-style-type: none"> • Create equations and inequalities in one variable, and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. A-CED1 • Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations. A-CED4 • 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. A-REI1 • Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. A-REI3
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Unit Essential Questions What is the difference between an expression and an equation?

Unit Essential Vocabulary

1. equivalent equations
2. addition property of equality
3. subtraction property of equality
4. isolate
5. inverse operations
6. multiplication property of equality
7. division property of equality

Resources

Randall I. Charles, B. H. (2012). *Algebra 1 Common Core*. New Jersey: Pearson

Alex website

Kuta Software

Assessment(s) Bellringers – Assess student learning from the day before
Formative assessments – Assess daily work and student learning
Quizzes – assess student progress; help determine if students are ready to move on
Unit Tests – Assess student understanding

Assessment Data:

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IA

Unit Name: Unit 3 Solving Inequalities

Time Frame: 12 – 15 days

Unit Standards

- Create equations and inequalities in one variable, and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. A-CED1
- 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. A-CED3
- Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. A-REI3

Unit Essential Questions

How do you represent relationships between quantities that are not equal?
 Can inequalities that appear to be different be equivalent?
 How can you solve inequalities?

Unit Essential Vocabulary

1. complement of a set	9. Set-builder notation
2. compound inequality	10. Solution of an inequality
3. disjoint sets	11. union
4. empty set	12. Universal set
5. equivalent inequalities	
6. intersection	
7. interval notation	
8. roster form	

Resources

Randall I. Charles, B. H. (2012). *Algebra 1 Common Core*. New Jersey: Pearson

Alex website

Kuta software

Assessment(s)

Bellringers – Assess student learning from the day before
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 Unit Tests – Assess student understanding

Assessment Data:

ALGEBRA I

Course Name: Algebra IA

Unit Name: Unit 4 Functions

Time Frame: 12 – 15 days

Unit Standards

- Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. A-CED2
- 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). A-REI10
- 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 $y = f(x)$. F-IF1
- Use function notation, evaluate functions for inputs in their domains, and interpret statements that use function notation in terms of a context. F-IF2
- Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. F-IF3
- 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. Key features include intercept s ; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity. F-IF4
- Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes. F-IF5
- 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. F-IF6
- Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* a) Graph linear and quadratic functions, and show intercepts, maxima, and minima. b) Graph square root, cube root, and piecewise - defined functions, including step functions and absolute value functions. c) Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. F-IF7
- Write a function that describes a relationship between two quantities.* a) Determine an explicit expression, a recursive process, or steps for calculation from a context. b) Combine standard function types using algebraic operations. F-BF1
- Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms. F-BF2
- Find inverse functions. a) Solve an equation of the form $f(x) = c$ for a simple function f that has an inverse, and write an expression for the inverse. F-BF4
- Interpret the parameters in a linear or exponential function in terms of a context. F-LE5

Unit Essential Questions

How can you represent and describe functions?
Can functions describe real world situations?

Unit Essential

1. dependent variable 11. Discrete graph

Vocabulary	2. independent variable 3. input 4. output 5. function 6. linear function 7. nonlinear function 8. continuous graph 9. arithmetic sequence 10. recursive formula 12. relation 13. domain 14. range 15. Vertical line test 16. Function notation 17. sequence 18. Term of a sequence 19. Common difference 20. Explicit formula
Resources	Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i> . New Jersey: Pearson Alex website Kuta software
Assessment(s) Assessment Data:	Bellringers – Assess student learning from the day before Formative assessments – Assess daily work and student learning Quizzes – assess student progress; help determine if students are ready to move on Unit Tests – Assess student understanding

ALGEBRA I

Course Name: Algebra IA

Unit Name: Unit 5 Linear Functions

Time Frame: 12 – 15 days

Unit Standards

- Interpret expressions that represent a quantity in terms of its context.* a) Interpret parts of an expression such as terms, factors, and coefficients. b) Interpret complicated expressions by viewing one or more of their parts as a single entity. A-SSE1
- Create equations in two or more variables to represent relationships between quantities; graph equations on coordinate axes with labels and scales. A-CED2
- 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. A-CED3
- 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). A-REI10
- Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* a) Graph linear and quadratic functions, and show intercepts, maxima, and minima. b) Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. c) Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. F-IF7
- Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). F-IF9
- Identify the effect on the graph of replacing $f(x)$ by $f(x) + k$, $k f(x)$, 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. Include recognizing even and odd functions from their graphs and algebraic expressions for them. F-BF3
- Construct linear and exponential functions, including arithmetic and geometric sequences, given a graph, a description of the relationship, or two input-output pairs (include reading these from a table). F-LE2
- Interpret the parameters in a linear or exponential function in terms of a context. F-LE5
- Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. a) Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. b) Informally assess the fit of a function by plotting and analyzing residuals. c) Fit a linear function for a scatter plot that suggests a linear association. S-ID6
- Interpret the slope (rate of change) and the intercept (constant term) of a linear model in the context of the data. S-ID7
- Compare (using technology) and interpret the correlation coefficient of a linear fit. S-ID8
- Distinguish between correlation and causation. S-ID9

Unit Essential Questions

What does the slope of a line indicate about the line?
 What information does the equation of a line give you?
 How can you make predictions based on a scatter plot?

Unit Essential Vocabulary	1. rate of change 2. slope 3. parent function 4. linear parent function 5. linear equation 6. y- intercept 7. slope-intercept form 8. point-slope form 9. x-intercept 10. standard form of a linear equation 11. line of best fit 12. correlation coefficient 13. causation 14. absolute value function 15. Parallel lines 16. Perpendicular lines 17. Opposite reciprocals 18. Scatter plot 19. Positive correlation 20. Negative correlation 21. No correlation 22. Trend line 23. interpolation 24. extrapolation 25. Piecewise function 26. Step function 27. translation
Resources	Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i> . New Jersey: Pearson Alex website Kuta software
Assessment(s) Assessment Data:	Bellringers – Assess student learning from the day before Formative assessments – Assess daily work and student learning Quizzes – assess student progress; help determine if students are ready to move on Unit Tests – Assess student understanding

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IB

Unit Name: Unit 1 Systems of Equations and Inequalities

Time Frame: 15 – 18 days

Unit Standards	<ul style="list-style-type: none"> • 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. [A-REI5] • Solve systems of linear equations exactly and approximately, focusing on pairs of linear equations in two variables. [A-REI6] • Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. [A-REI7] • 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). [A-REI10] • 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. [A-REI11] • Graph the solution 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. [A-REI12]
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Unit Essential Questions
 How can you solve a system of equations or inequalities?
 Can systems of equations model real-world situations?

Unit Essential Vocabulary	<ol style="list-style-type: none"> 1. System of linear equations 2. Solution of a system of linear equations 3. Consistent 4. Independent 5. Dependent 6. Inconsistent 7. Substitution method 8. Elimination method 9. Linear inequality 10. Solution of an inequality 11. System of linear inequalities 12. Solution of a system of linear inequalities
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Resources
 Randall I. Charles, B. H. (2012). *Algebra 1 Common Core*. New Jersey: Pearson
 Alex website
 Kuta software

Assessment(s)
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Assessment Data:

ALGEBRA I

Course Name: Algebra IB

Unit Name: Unit 2 Exponents and Exponential Functions

Time Frame: 10-12 days

Unit Standards

- 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. [N-RN1]
- Rewrite expressions involving radicals and rational exponents using the properties of exponents. [N-RN2]
- Interpret expressions that represent a quantity in terms of its context.* [A-SSE1]
- Interpret parts of an expression such as terms, factors, and coefficients. [A-SSE1a]
- b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [A-SSE1b]
- Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* [A-SSE3]
- Factor a quadratic expression to reveal the zeros of the function it defines. [A-SSE3a]
- b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. [A-SSE3b]
- c. Determine a quadratic equation when given its graph or roots. (Alabama)
- d. Use the properties of exponents to transform expressions for exponential functions. [A-SSE3c]
- (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. [A-APR7]
- Solve a simple system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. [A-REI7]
- 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). [A-REI10]
- 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. [A-REI12]
- 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 $y = f(x)$. [F-IF1]
- Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. [F-IF3]
- 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. Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* [F-IF4]
- 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.* [F-IF6]
- Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* [F-IF7]
- A. Graph linear and quadratic functions, and show intercepts, maxima, and minima. [F-IF7a]
- b. Graph square root, cube root, and piecewise-defined functions, including step functions and

	<p>absolute value functions. [F-IF7b]</p> <ul style="list-style-type: none"> • Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8] • A. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. [F-IF8a] • b. Use the properties of exponents to interpret expressions for exponential functions. [F-IF8b] • Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). [F-IF9] • Write a function that describes a relationship between two quantities.* [F-BF1] <ul style="list-style-type: none"> a. Determine an explicit expression, a recursive process, or steps for calculation from a context. [F-BF1a] b. Combine standard function types using arithmetic operations. [F-BF1b] • Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.* [F-BF2] • Distinguish between situations that can be modeled with linear functions and with exponential functions. [F-LE1] • a. Prove that linear functions grow by equal differences over equal intervals, and that exponential functions grow by equal factors over equal intervals. [F-LE1a] • b. Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. [F-LE1b] • c. Recognize situations in which a quantity grows or decays by a constant percent rate per unit interval relative to another. [F-LE1c] • 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). [F-LE2] • Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. [F-LE3] • Interpret the parameters in a linear or exponential function in terms of a context. [F-LE5] 																
Unit Essential Questions	<p>How can you represent numbers less than 1 using exponents?</p> <p>How can you simplify expressions involving exponents?</p> <p>What are the characteristics of exponential functions?</p>																
Unit Essential Vocabulary	<table> <tr> <td>1. Order of magnitude</td><td>9. Compound interest</td></tr> <tr> <td>2. Power</td><td>10. Exponential decay</td></tr> <tr> <td>3. Exponent</td><td>11. Zero exponent</td></tr> <tr> <td>4. Base</td><td>12. Negative exponent</td></tr> <tr> <td>5. Reciprocal</td><td>13. Growth factor</td></tr> <tr> <td>6. Cube Root</td><td>14. Growth rate</td></tr> <tr> <td>7. Exponential function</td><td>15. Decay factor</td></tr> <tr> <td>8. Exponential growth</td><td>16. Decay rate</td></tr> </table>	1. Order of magnitude	9. Compound interest	2. Power	10. Exponential decay	3. Exponent	11. Zero exponent	4. Base	12. Negative exponent	5. Reciprocal	13. Growth factor	6. Cube Root	14. Growth rate	7. Exponential function	15. Decay factor	8. Exponential growth	16. Decay rate
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Resources	<p>Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i>. New Jersey: Pearson</p> <p>Alex website</p> <p>Kuta software</p>																

Assessment(s)

**Assessment
Data:**

Bellringers – Assess student learning from the day before
Formative assessments – Assess daily work and student learning
Quizzes – assess student progress; help determine if students are ready to move on
Unit Tests – Assess student understanding

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IB	
Unit Name: Unit 3 Polynomials and Factoring	
Time Frame:	15-18 days
Unit Standards	8.) Use the structure of an expression to identify ways to rewrite it. [A-SSE2] 10.) 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. [A-APR1]
Unit Essential Questions	Can two algebraic expressions that appear to be different be equivalent? How are the properties of real numbers related to polynomials?
Unit Essential Vocabulary	<ol style="list-style-type: none"> 1. Monomial 2. Degree of a monomial 3. Polynomial 4. Standard Form of a polynomial 5. Degree of a polynomial 6. Binomial 7. Trinomial 8. Perfect-square trinomial 9. Difference of two squares 10. Factoring by grouping
Resources	Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i> . New Jersey: Pearson Alex website Kuta software
Assessment(s) Assessment Data:	Bellringers – Assess student learning from the day before Formative assessments – Assess daily work and student learning Quizzes – assess student progress; help determine if students are ready to move on Unit Tests – Assess student understanding

ALGEBRA I

Course Name: Algebra IB

Unit Name: Unit 4 Quadratic Equations and Functions

Time Frame: 15-18 days

Unit Standards

- Interpret expressions that represent a quantity in terms of its context.* [A-SSE1]
 - a. Interpret parts of an expression such as terms, factors, and coefficients. [A-SSE1a]
 - b. Interpret complicated expressions by viewing one or more of their parts as a single entity. [A-SSE1b]
- Choose and produce an equivalent form of an expression to reveal and explain properties of the quantity represented by the expression.* [A-SSE3]
 - a. Factor a quadratic expression to reveal the zeros of the function it defines. [A-SSE3a]
 - b. Complete the square in a quadratic expression to reveal the maximum or minimum value of the function it defines. [A-SSE3b]
 - c. Determine a quadratic equation when given its graph or roots. (Alabama)
 - d. Use the properties of exponents to transform expressions for exponential functions. [A-SSE3c]
- (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. [A-APR7]
- Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. [A-REI3]
- Solve systems of linear equations exactly and approximately (e.g., with graphs), focusing on pairs of linear equations in two variables. [A-REI6]
- 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). [A-REI10]
- Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. [F-IF3]
- 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. Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* [F-IF4]
- 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.* [F-IF6]
- Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* [F-IF7]
 - a. Graph linear and quadratic functions, and show intercepts, maxima, and minima. [F-IF7a]
 - b. Graph square root, cube root, and piecewise-defined functions, including step functions and absolute value functions. [F-IF7b]
- Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8]
 - a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. [F-IF8a]
 - b. Use the properties of exponents to interpret expressions for exponential functions. [F-IF8b]
- Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions). [F-IF9]
- Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.* [F-BF2]
- Observe, using graphs and tables, that a quantity increasing exponentially eventually exceeds a quantity increasing linearly, quadratically, or (more generally) as a polynomial function. [F-LE3]

Unit Essential Questions	What are the characteristics of quadratic functions? How can you solve a quadratic equation? How can you use functions to model real-world situations?	
Unit Essential Vocabulary	1. Quadratic function 2. Standard Form of a quadratic function 3. Quadratic parent function 4. Parabola 5. Axis of symmetry 6. Vertex 7. Minimum 8. Maximum 9. Quadratic equations in polynomial form	10. Quadratic equation 11. Standard Form of a quadratic equation 12. Root of an equation 13. Zero of a function 14. Zero-product property 15. Completing the square 16. Quadratic formula 17. Discriminant
Resources	Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i> . New Jersey: Pearson Alex website Kuta software	
Assessment(s) Assessment Data:	Bellringers – Assess student learning from the day before Formative assessments – Assess daily work and student learning Quizzes – assess student progress; help determine if students are ready to move on Unit Tests – Assess student understanding	

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IB

Unit Name: Unit 5 Rational Expressions and Functions

Time Frame:	10-12 days	
Unit Standards	<p>11.) (+) Understand that rational expressions form a system analogous to the rational numbers, closed under addition, subtraction, multiplication, and division by a nonzero rational expression; add, subtract, multiply, and divide rational expressions. [A-APR7]</p> <p>12.) Create equations and inequalities in one variable, and use them to solve problems. Include equations arising from linear and quadratic functions, and simple rational and exponential functions. [A-CED1]</p>	
Unit Essential Questions	<p>How are rational expressions represented?</p> <p>What are the characteristics of rational functions?</p> <p>How can you solve a rational equation?</p>	
Unit Essential Vocabulary	<ol style="list-style-type: none"> 1. Rational expression 2. Excluded value 3. Complex fraction 4. Rational equation 	<ol style="list-style-type: none"> 5. Inverse variation 6. Constant of variation for an inverse variation 7. Rational function 8. Asymptote
Resources	<p>Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i>. New Jersey: Pearson</p> <p>Alex website</p> <p>Kuta software</p>	
Assessment(s)	<p>Bellringers – Assess student learning from the day before</p> <p>Formative assessments – Assess daily work and student learning</p> <p>Quizzes – assess student progress; help determine if students are ready to move on</p> <p>Unit Tests – Assess student understanding</p>	
Assessment Data:		

Jasper City Schools Curriculum Map

ALGEBRA I

Course Name: Algebra IB

Unit Name: Unit 6 Radical Expressions and Equations

Time Frame: 10-12 days

Unit Standards

28.) 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. Key features include intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity.* [F-IF4]

30.) 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.* [F-IF6]

32.) Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. [F-IF8]

a. Use the process of factoring and completing the square in a quadratic function to show zeros, extreme values, and symmetry of the graph, and interpret these in terms of a context. [F-IF8a]

b. Use the properties of exponents to interpret expressions for exponential functions. [F-IF8b]

35.) Write arithmetic and geometric sequences both recursively and with an explicit formula, use them to model situations, and translate between the two forms.* [F-BF2]

Unit Essential Questions

How are radical expressions represented?

What are the characteristics of square root functions?

How can you solve a radical equation?

Unit Essential Vocabulary

1. Hypotenuse	11. Unlike radicals
2. Leg	12. Conjugates
3. Pythagorean Theorem	13. Radical equation
4. Conditional	14. Extraneous solution
5. Hypothesis	15. Square root function
6. Conclusion	16. Trigonometric ratios
7. Converse	17. Sine
8. Radical Expression	18. Cosine
9. Rationalize the denominator	19. Tangent
10. Like radicals	20. Angle of elevation
	21. Angle of depression

Resources

Randall I. Charles, B. H. (2012). *Algebra 1 Common Core*. New Jersey: Pearson

Alex website

Kuta software

Assessment(s)

Bellringers – Assess student learning from the day before

Formative assessments – Assess daily work and student learning

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Assessment Data:

**ALGEBRA I****Course Name:** Algebra IB**Unit Name:** Unit 7 Statistics and Probability**Time Frame:** 10-12 days**Unit Standards**

- 41.) Represent data with plots on the real number line (dot plots, histograms, and box plots). [S-ID1]
- 42.) 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. [S-ID2]
- 43.) Interpret differences in shape, center, and spread in the context of the data sets, accounting for possible effects of extreme data points (outliers). [S-ID3]
- 44.) 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. [S-ID5]
- 45.) Represent data on two quantitative variables on a scatter plot, and describe how the variables are related. [S-ID6]
- a. Fit a function to the data; use functions fitted to data to solve problems in the context of the data. Use given functions or choose a function suggested by the context. Emphasize linear, quadratic, and exponential models. [S-ID6a]
- b. Informally assess the fit of a function by plotting and analyzing residuals. [S-ID6b]
- c. Fit a linear function for a scatter plot that suggests a linear association. [S-ID6c]
- 47.) Understand that two events A and B are independent if the probability of A and B occurring together is the product of their probabilities, and use this characterization to determine if they are independent. [S-CP2]

Unit Essential Questions

- How can collecting and analyzing data help you make decisions or predictions?
- How can you make and interpret different representations of data?
- How is probability related to real-world events?

Unit Essential Vocabulary

- | | |
|--------------------------------|---------------------------------------|
| 1. Matrix | 24. Bivariate |
| 2. Element | 25. Population |
| 3. Scalar | 26. Sample |
| 4. Scalar multiplication | 27. Bias |
| 5. Frequency | 28. Multiplication Counting Principle |
| 6. Frequency table | 29. Permutation |
| 7. Histogram | 30. n factorial |
| 8. Cumulative frequency table | 31. Combination |
| 9. Measure of central tendency | 32. Outcome |
| 10. Outlier | 33. Sample space |
| 11. Mean | 34. Event |
| 12. Median | 35. Probability |
| 13. Mode | 36. Theoretical probability |
| 14. Measure of dispersion | 37. Complement of an event |
| 15. Range of a set of data | 38. Odds |
| 16. Quartile | 39. Experimental probability |
| 17. Interquartile range | 40. Compound event |
| 18. Box-and-whisker plot | 41. Mutually exclusive events |
| 19. Percentile | 42. Overlapping events |
| 20. Percentile rank | 43. Independent events |
| 21. Quantitative | 44. Dependent events |
| 22. Qualitative | |
| 23. Univariate | |

Resources	Randall I. Charles, B. H. (2012). <i>Algebra 1 Common Core</i> . New Jersey: Pearson Alex website Kuta software
Assessment(s) Assessment Data:	Bellringers – Assess student learning from the day before Formative assessments – Assess daily work and student learning Quizzes – assess student progress; help determine if students are ready to move on Unit Tests – Assess student understanding