| First Nine Weeks | | |
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| Week(s) | Topics & Objectives | Standards |
| 1 | 1-1, 1-2 Exploring transformations and parent functions | FBF 3 Exploring transformations and parent functions Identify the effect on the graph of replacing f(x) by f(x) + k, k f(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. Include recognizing even and odd functions from their graphs and algebraic expressions for them. |
| 2 | 1-3 Transforming linear functions | FBF3 Transforming linear functions Identify the effect on the graph of replacing f(x) by f(x) + k, k f(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. Include recognizing even and odd functions from their graphs and algebraic expressions for them. |
| 3 | 2-1, 2-2 properties and graphs of polynomial functions | ACED2, FIF8A properties and graphs of polynomial functions Write a function defined by an expression in different but equivalent forms to reveal and explain different properties of the function. |
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| 4 | 2-9 Operations with complex numbers | NCN2 Operations with complex numbers Rewrite expressions involving radicals and rational exponents using the properties of exponents. |
| 5 | 3-1, multiply polynomials and properties of polynomials | FIF 7C, ,APR5 multiply polynomials and properties of polynomials Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior |
| 6 | 3-2 operations on polynomials | FIF 7, APR5 operations on polynomials 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. |
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| 7 | 3-2, 3-3 long division of polynomials | APR2 long division of polynomials Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x) |
| 8 | 3-3 synthetic division Factoring and roots of polynomials | APR2 synthetic division<br>APR2, APR3 Factoring and roots of polynomials Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x) Identify zeros of polynomials when suitable factorizations are available, |

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| | | and use the zeros to construct a rough graph of the function defined by the polynomial. |
| 9 | 3-4.3-7 Factoring and roots of polynomials | APR2, APR3 Factoring and roots of polynomials Know and apply the Remainder Theorem: For a polynomial p(x) and a number a, the remainder on division by x – a is p(a), so p(a) = 0 if and only if (x – a) is a factor of p(x) 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. 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. |
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| Second Nine Weeks | | |
| Week(s) | Topics & Objectives | Standards |
| 10 | 3-7 INVESTIGATION OF GRAPHS OF POLY FUNCTIONS | APR3 INVESTIGATION OF GRAPHS OF POLY FUNCTIONS 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. |
| 11 | 4-1 exponential functions, growth and decay | FIF 7E exponential functions, growth and decay Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. |
| 12 | 4-2 inverse of relations and functions | FBF4 inverse of relations and functions 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. For example, f(x) =2x3 or f(x) = (x+1)/(x-1) for x ≠ 1. |
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| 13 | 4-3 logarithmic functions | FBF5 logarithmic functions |
| 14 | 4-4 properties of logs | ACED2 properties of logs |
| 15 | 4-4, 4-5 properties of logs, solve log and exponential equations | ACED2 properties of logs, solve log and exponential equations |
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| 16 | 5-2 MULT RATIONAL EXPRESSIONS | APR7 MULT RATIONAL EXPRESSIONS |
| 17 | 5-3 adding and subtracting rational expressions | APR7 adding and subtracting rational expressions |
| 18 | 5-4, 5-5 solving rational equations and inequalities, graphing rational functions | FIF5 solving rational equations and inequalities, graphing rational functions |
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| Third Nine Weeks | | |
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| Week(s) | Topics & Objectives | Standards |
| 19 | 10-1 Right triangle trigonometry | Right triangle trigonometry FTF3 |
| 20 | 10-2 Angles of rotation | Angles of rotation FTF2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. |
| 21 | 10-3 The unit circle | The unit circle FTFF2 Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers, interpreted as radian measures of angles traversed counterclockwise around the unit circle. |
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| 22 | 10-4 Inverses of Trig functions | Inverses of Trig functions FTF6 Understand that by similarity, side ratios in right triangles are properties of the angles in the triangle, leading to definitions of trigonometric ratios for acute angles. |
| 23 | 10-5 Law of sines | Law of sines GSRT10+ Prove the Laws of Sines and Cosines and use them to solve problems Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces) |
| 24 | 10-6 Law of cosines, Heron's Formula | Law of cosines, Heron's Formula GSRT10+ Understand and apply the Law of Sines and the Law of Cosines to find unknown measurements in right and non-right triangles (e.g., surveying problems, resultant forces) |

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| 25 | 11-1 Graphs of sine and cosine | Graphs of sine and cosine FIF7* Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases.* c. Graph polynomial functions, identifying zeros when suitable factorizations are available, and showing end behavior. e. Graph exponential and logarithmic functions, showing intercepts and end behavior, and trigonometric functions, showing period, midline, and amplitude. |
| 26 | 11-2 Graphs of other Trig Functions | Graphs of other Trig Functions FTF5* Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline.* |
| 27 | 11-3 Fundamental Trig Identities | Fundamental Trig Identities FTF8 Prove the Pythagorean identity sin (Θ)2 + cos (Θ)2 = 1 and use it to find sin (Θ), cos (Θ), or tan (Θ), given sin (Θ), cos (Θ), or tan (Θ) and the quadrant of the angle. |
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| Fourth Nine Weeks | | |
| Week(s) | Topics & Objectives | Standards |
| 28 | 11-4 Sum and Difference Identities | Sum and Difference Identities FTF9+ Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems. |
| 29 | 11-5 Double and half angle identities | Double and half angle identities FTF9+ Prove the addition and subtraction formulas for sine, cosine, and tangent and use them to solve problems. |
| 30 | 11-6 Solving trig equations | Solving trig equations FTF7 Use inverse functions to solve trigonometric equations that arise in modeling contexts; evaluate the solutions using technology, and interpret them in terms of the context. * |
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| 31 | 9-1 Introduction to sequences | Introduction to sequences FIF 3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1. |
| 32 | 9-2 Series and summation notation | Series and summation notation FIF3 Recognize that sequences are functions, sometimes defined recursively, whose domain is a subset of the integers. For example, the Fibonacci sequence is defined recursively by f(0) = f(1) = 1, f(n+1) = f(n) + f(n-1) for n ≥ 1. |

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| 33 | 9-3 Geometric sequences and series | Geometric sequences and series A Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.* |
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| 34 | 9-4 Geometric sequences and series | Geometric sequences and series ASSE4 Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. For example, calculate mortgage payments.* |
| 35 | 6-3 thru 6-6 Piecewise functions operations with functions INVERSE OF FUNCTIONS | Piecewise functions ACED 2, operations with functions FBF1B, FBF1C, INVERSE OF FUNCTIONS ACED 2, ACED 3 |
| 36 | Final project week | |
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