UNIT 1

Module 1

1. **A-SSE.A.2 (10 pts)** - Use structure to identify ways to rewrite polynomial and rational expressions. Focus on polynomial operations and factoring patterns
2. **A-APR.B.3 (30 pts)** - 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

Module 2

3. **A-APR.B.2 (30 pts)** - Know and apply the Remainder and Factor 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)

(2) **A-APR.B.3 (30 pts)** - 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

4. **F-IF.C.7 (30 pts)** - Graph functions expressed symbolically and show key features of the graph, by hand in simple cases and using technology for more complicated cases
5. **F-IF.C.9 (40 pts)** - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions.)

UNIT 2

Module 3

6. **A-APR.D.6 (10 pts)** - Rewrite rational expressions in different forms; write a(x)/b(x) in the form q(x)+r(x)/b(x), where a(x), b(x), q(x), and r(x) are polynomials with the degree of r(x) less than the degree of b(x), using inspection, long division, or for the more complicated examples, a computer algebra system
7. **A-REI.A.1 (20 pts)** - Explain each step in solving an 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
8. **A-REI.A.2 (30 pts)** - Solve rational and radical equations in one variable, and give examples showing how extraneous solutions may arise

Module 4

(8) **A-REI.A.2 (30 pts)** - Solve rational and radical equations in one variable, and give examples showing how extraneous solutions may arise

9. **N-RN.A.2 (20 pts)** - Rewrite expressions involving radicals and rational exponents using the properties of exponents

UNIT 3

Module 5

10. **F-BF.B.3 (20 pts)** - 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. Include recognizing even and odd functions from their graphs and algebraic expressions for them
11. **F-IF.B.4 (10 pts)** - 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. Include problem-solving opportunities utilizing a real-world context. Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximums and minimums; symmetries; end behavior; and periodicity

(5) **F-IF.C.9 (40 pts)** - Compare properties of two functions each represented in a different way (algebraically, graphically, numerically in tables, or by verbal descriptions.)

12. **A-REI.C.7 (10 pts)** - Solve a system consisting of a linear equation and a quadratic equation in two variables algebraically and graphically. For example, find the points of intersection between the line y=-3x and the circle x2+y2=3

Module 6

13. **A-REI.B.4 (20 pts)** - Fluently solve quadratic equations in one variable. Solve quadratic equations by inspection (e.g., for x2=49), taking square roots, completing the square, the quadratic formula and factoring, as appropriate to the initial form of the equation. Recognize when the quadratic formula gives complex solutions and write them as a±bi for real numbers a and b
14. **N-CN.A.2 (10 pts)** - Use the relation *i*2 = -1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers
15. **N-CN.A.1 (10 pts)** - Apply the relation i2=-1 and the commutative, associative, and distributive properties to add, subtract, and multiply complex numbers. Write complex numbers in the form (a+bi) with a and b real
16. **N-CN.C.7 (20 pts)** - Solve quadratic equations with real coefficients that have complex solutions

Module 13 - Stats Unit

- Standards TBD