Whiteriver Unified School District
Essential Standards Quarterly Focus

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Teacher

What is it that we expect students to learn?

Grade 12	Subject: Precalculus

First Quarter

1. **RFR.AF.2**
   Sketch the graph of a function that models a relationship between two quantities, identifying key features.

2. **RFR.BF.1**
   Model relationships between quantities that require adding, subtracting, multiplying, and/or dividing functions.

3. **RFR.BF.3**
   Rewrite a function as a composition of functions.

4. **RFR.BF.4**
   Determine if a function has an inverse. If so, find the inverse. If not, define a restriction on the domain that meets the requirement for invertibility and find the inverse on the restricted domain.

5. **RFR.BF.6**
   Verify by analytical methods that one function is the inverse of another.

6. **RFR.AF.4**
   Use limits to describe long-range behavior, asymptotic behavior, and points of discontinuity.

Second Quarter

1. **RFR.IC.2**
   Identify key features of conic sections (foci, directrix, radii, axes, asymptotes, center) graphically and algebraically.

2. **RFR.IC.3**
   Sketch a graph of a conic section using its key features.

3. **RFR.IC.4**
   Use the key features of a conic section to write its equation.

4. **RFR.IC.5**
   Given a quadratic equation of the form $ax^2 + by^2 + cx + dy + e = 0$, determine if the equation is a circle, ellipse, parabola, or hyperbola.

5. **RFR.ISS.2**
   Use covariational reasoning to describe sequences and series.

6. **RFR.ISS.4**
   Find the sums of finite or infinite series, if they exist.

Third Quarter

1. **P.A-APR.C.5**
   Know and apply the Binomial Theorem for the expansion of $(x+y)^n$ in powers of x and y for a positive integer n, where x and y are any numbers, with coefficients determined for example by Pascal's Triangle. The Binomial Theorem can be proved by mathematical induction or by a combinatorial argument.

2. **RFR.ETT.2**
   Apply the Law of Sines and the Law of Cosines to solve problems.

3. **RFR.ETT.3**
   Use trigonometry to find the area of triangles.

4. **RT.RTS.1**
   Use the structure of a trigonometric expression to identify ways to rewrite it.

5. **RT.RTS.3**
   Solve trigonometric equations.

6. **RT.EPE.1**
   Graph polar equations.

7. **RV.MP.3**
   Graph parametric equations and identify orientation.

Fourth Quarter

1. **RV.EV.3**
   Find the components of a vector by subtracting the coordinates of an initial point from the coordinates of a terminal point.

2. **RV.EV.5**
   Add and subtract vectors and multiply a vector by a scalar.

3. **RM.UM.1**
   Use matrices to represent and manipulate data.

4. **RM.UM.2**
   Use matrix operations to solve problems. Add, subtract, and multiply matrices of appropriate dimensions. Multiply matrices by scalars to produce new matrices.

5. **RM.UM.3**
   Find the inverse and determinant of a matrix.

6. **RM.UM.4**
   Use matrices to solve systems of linear equations.

- *Endurance- Knowledge and skills of value beyond a single date*
- *Leverage- Knowledge and skills valuable in multiple disciplines*
- *Readiness for the next level of learning- Knowledge and skills that are necessary for success in the next grade level or the next level of instruction*