

## **Exam Title: 1202340 PreCalculus**

### **Courses Assessed by this Exam: PreCalculus 1202340**

**Key Vocabulary:** sine, cosine, tangent, secant, cosecant, cotangent, arcsine, arctangent, period, range, angle of elevation, magnitude, vector, component form, initial point, terminal point, focus (foci), directrix (directrices), minor axis, major axis, polar coordinates, Cartesian coordinates, roots, inverse.

#### **Student Tasks:**

- Find exact values of trigonometric function in degrees or radians.
- Determine period of a function given graph or equation.
- Determine range of trigonometric function given an equation
- Find equivalent expressions given trigonometric expressions
- Use trigonometric ratios to model real world problems
- Use law of sine and cosine to solve real world problems
- Use area =  $\frac{1}{2} ab \sin C$  to find area of triangle
- Use trigonometric ratios and Pythagorean Theorem or Pythagorean identities to find missing trigonometric ratios.
- Use arcsine, arctangent, and arccosine, to determine exact values of trig expressions
- Use  $\frac{1}{2}$  angle formulas to solve problems
- Use sum or difference formulas to solve problems
- Subtract vectors
- Multiple vectors by scalars
- Find magnitude and component form of vectors given initial and terminal points
- Write unit vectors given initial and terminal points
- Find roots of polynomial functions
- Use synthetic or long division to rewrite a polynomial expression
- Determine inverses of functions
- Given two functions, find limits of differences, products, and quotients
- Create exponential expressions using data table to model real world examples
- Determine features of a circle given an equation
- Determine the equation of a parabola given a focus and a directrix
- Find zeros of polynomial functions
- Convert between polar and Cartesian coordinates
- Determine equivalent expressions given complex numbers raised to a power (may use DeMoivre's theorem)
- Derive the equation of an ellipse given shifts, directrices, and foci
- Derive the equation of an hyperbola directrices, and foci