

## CURRICULUM MAP – PRE-CALCULUS

### DEVELOP

Mathematical skill	Conceptual Framework	Subset
Use estimation in problem solving	Number Sense	Number Sets
Use graphing calculator to model and solve real world problems	Patterns and Functions	Relationship
Resolve vectors and find resultant vector using parallelogram of forces	Geometry	Geometry
Utilize problem solving strategies	Problem Solving	Problem Solving
Utilizes mental math	Problem Solving	Problem Solving

### DEVELOP / TEST

Mathematical skill	Conceptual Framework	Subset
Change complex numbers to their simplest form	Number Sense	Relationship
Add / subtract irrational numbers	Number Sense	Computation without calculator
Add / subtract complex numbers	Number Sense	Computation without calculator
Add/subtract vectors	Number Sense	Computation without calculator
Multiply irrational numbers	Number Sense	Computation without calculator
Multiply complex numbers	Number Sense	Computation without calculator
Determine the product of a scalar and a vector	Number Sense	Computation without calculator
Determine the magnitude of a vector	Number Sense	Computation without calculator
Determine the scalar product of two vectors	Number Sense	Computation without calculator
Divide irrational numbers	Number Sense	Computation without calculator
Write and evaluate fractional exponents	Number Sense	Computation without calculator

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### DEVELOP / TEST

<b>Determine the value of a logarithmic expression with and without a calculator</b>	Number Sense	Computation without calculator
<b>Given a series, find the sum to the nth term in a series</b>	Patterns and Functions	Number
<b>Find the sum of an infinite series</b>	Patterns and Functions	Number
<b>Calculate the limit of a sequence</b>	Patterns and Functions	Number
<b>Identify convergent and divergent sequences</b>	Patterns and Functions	Number
<b>Apply completing the sequence to solve a quadratic equation</b>	Patterns and Functions	Number
<b>Solve quadratic or second degree equations by factoring, quadratic formula and graphing</b>	Patterns and Functions	Number
<b>Use graphing calculators to confirm conjectures about parent functions of cubic functions</b>	Patterns and Functions	Number
<b>Use graphing calculators to confirm conjectures about parent functions of radical functions</b>	Patterns and Functions	Number
<b>Use graphing calculators to confirm conjectures about parent functions of exponential functions</b>	Patterns and Functions	Number
<b>Use graphing calculators to confirm conjectures about parent functions of logarithmic functions</b>	Patterns and Functions	Number
<b>Simplify rational expressions</b>	Patterns and Functions	Relationship
<b>Solve rational equations</b>	Patterns and Functions	Relationship
<b>Determine and graph the inverse of a function</b>	Patterns and Functions	Relationship
<b>Graph and describe the attributes of circular functions (sine, cosine, tangent, cosecant, secant, cotangent)</b>	Patterns and Functions	Relationship
<b>Graph conics (circle, ellipse, parabola, hyperbola)</b>	Patterns and Functions	Relationship
<b>Graph circles</b>	Patterns and Functions	Relationship
<b>Graph ellipses</b>	Patterns and Functions	Relationship
<b>Graph hyperbolas</b>	Patterns and Functions	Relationship

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### DEVELOP / TEST

Name the equation of a cone when given facts about its intercepts, center, axis, lengths, or tangent line	Patterns and Functions	Relationship
Describe the surface given its equation in three variables [I/D/T]	Patterns and Functions	Relationship
Graph a polar equation of the form $r=f(\phi)$ [I/D/T]	Patterns and Functions	Relationship
Use graphing calculators to model and solve trigonometric and transcendental functions	Patterns and Functions	Relationship
Solve trigonometric identities to prove identities	Patterns and Functions	Relationship
Determine the vector equation of a line	Patterns and Functions	Relationship
Find the angle between two lines, knowing their equation [I/D/T]	Patterns and Functions	Relationship
Graph a surface described by its equation in three variables [I/D/T]	Patterns and Functions	Relationship
Locate a point expressed in polar form in the polar coordinate system	Geometry	Geometry
Convert a point expressed in rectangular coordinates into its polar equivalent	Geometry	Geometry
Transform equations from polar into Cartesian	Geometry	Geometry
Determine if two vectors are parallel or perpendicular	Geometry	Geometry
Find the directed distance between a point and a line	Geometry	Geometry
Calculate trig ratio in radian measure	Geometry	Geometry
Use law of cosines and law of sines to solve triangles	Geometry	Geometry
Compute the lengths of chords and tangents	Geometry	Geometry
Compute the length of secants	Geometry	Geometry
Use trigonometric ratios to model and solve real world problems	Geometry	Geometry
Determine the arc length of a circle	Measurement	Types
Recognize and determine the measure of a central angle	Measurement	Types

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### DEVELOP / TEST

<b>Measure angles using radians</b>	Measurement	Angles
<b>Convert between degree and radian measure</b>	Measurement	Angles
<b>Calculate area of sector of circle</b>	Measurement	Angles
<b>Identify customary value and co-ordinates of the unit circle in both degrees and radians</b>	Measurement	Angles