OUTCOMES	ASSESSMENT RUBRICS			
PC30.1 Extend understanding of angle to angle in standard position, expressed in degrees and radians				
Level / **Criteria**	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 4a: I can extend my understanding of angles to angles in standard position, expressed in degrees and radians	I need more help with becoming consistent with the criteria.	I can sketch angles in standard position in positive and negative degrees. Convert degrees to radians and vice versa. Calculate conterminal angles in a specific domain (in degrees and radians).	Sketch one radian in standard position. I can write an expression for all coterminal angles given a specified domain.	I can describe relationship between the angle measurement systems I can explain relationships between radian measure and arc on circle of radians. I can answer situational questions.

OUTCOMES	ASSESSMENT RUBRICS
PC30.2 Demonstrate understanding of the unit circle and its relationship to the six trigonometric ratios for any angle in standard position PC 30.4 Demonstrate understanding of first and second degree trigonometric equations	

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome4b: I can demonstrate understanding of the unit circle , its relationship to the six trigonometric ratios, first and second degree trig equations.	I need more help with becoming consistent with the criteria.	I can derive and apply equation $x^2 + y^2 = 1$ with coordinates on a terminal arm or unit circle. Determine with technology trig ratios of any angle in radians or degrees.	I can determine exact trig ratios for measures that are multiples of 0^0, 30^0, 45^0, 60^0, 90^0 and radian measures. I can solve multiple step trig equations.	Explain the relationship between angles and their points on the unit circle

OUTCOMES	ASSESSMENT RUBRICS
PC 30.3 Demonstrate understanding of the graphs of the primary trigonometric functions	

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 5a: I can demonstrate understanding of the graphs of the primary trigonometric functions.	I need more help with becoming consistent with the criteria.	I can sketch the graph of sinx, cosx, and tanx over one positive and one negative period. I can determine the characteristics of a trig functions in the form y=sinx, y= cosx and y=tanx. (amplitude, asymptotes, domain, range, period, zeros).	I can determine and summarize the characteristics of transformed graphs of sinx, cosx, and tanx. Write equations for a given trig graph. I can graph Y = a sin b (x-c) + d and Y= a cos b (x-c) + d	I can explain transformational impact of coefficients a,b,c,d in terms of amplitude, period, phase shift, domain, range and zeros. I can explain the relationship between the sine and cosine functions. I can solve situational problems. I made no errors.

OUTCOMES	ASSESSMENT RUBRICS

PC30.5 Demonstrate understanding of trigonometric identities including:

- Reciprocal identities
- Quotient identities
- Pythagorean identities
- Sum or difference identities
- Double angle identities

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 6a: I can demonstrate understanding of trigonometric identities including: • reciprocal identities • quotient identities • Pythagorean identities • sum or difference identities double-angle identities	I need more help with becoming consistent with the criteria.	I can verify a trig statement for a given value Prove " one step" trig identities algebraically. Determine the exact values of trig ratios using sum, difference and double angle identities. My process is correct, but may make simplifying errors.	I can prove more complicated identities.	I can determine non-permissible values of trig identities. I can prove any trig identity

OUTCOMES	ASSESSMENT RUBRICS
PC30.6 Demonstrate an understanding of operations on and compositions of functions	

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 10a: I can demonstrate an understanding of operations on, and compositions of, functions.	I need more help with becoming consistent with the criteria.	I can write equations of a function that results from the sum, difference, product, quotient of two or more functions.	I can write an equation/function as a composition of two or more functions. I can sketch a function that is sum or difference, of two given graphs. I can determine the domain and range for sums, differences, and composite functions.	I can explain strategies for determining f(f(x)), f(g(x)) and g(f(x)). I can sketch a function that is a product quotient or composite of two given graphs I made no errors.

OUTCOMES	ASSESSMENT RUBRICS

PC30.7 Extend understanding of transformations to include equations (given in equation or graph form) in general, including horizontal and vertical translations, and horizontal and vertical stretches.

PC 30.8 Demonstrate understanding of functions, relations, and inverses and their related equations resulting in reflections through the:

- X-axis
- Y-axix
- Line y=x

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 1a: I can extend understanding of transformations and reflections to include functions and inverses (given in equation or graph form) in general, including horizontal and vertical translations and	I need more help with becoming consistent with the criteria.	I can identify the parameters a, b, h, and k and describe their effect on the graph of y=f(x) given the equation y=f(x) I can sketch functions with single transformations, stretches, and reflections of y	I can describe and graph combinations of transformations, stretches, and reflections. I can write the equation of functions that has undergone specified translations and or stretches from a given function in the form **y = a f(b(x-h))+k** I can develop and apply numeric, algebraic, graphic strategies to determine if two	I can generalize about the effects of the placement of different coefficients on the original graph of y = f(x). I can explain strategies to determine if a relation and its inverse are functions I can determine what restrictions must be placed on domain of a function for its inverse to be a function.

stretches, and reflections through the x-axis, y-axis and line y=x.		= f(x) when given the graph of y=f(x). I can write equations of functions with single transformations or reflections through the x-axis, y-axis or y = x line. Given the equation of a function I can write the equation of its inverse	relations are inverses of each other.	I made no errors.

OUTCOMES	ASSESSMENT RUBRICS

PC30.9 Demonstrate an understanding of logarithms including:

- Evaluating logarithms
- Relating logarithms to exponents
- Deriving laws of logarithms
- Solving equations
- Graphing

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 7a: I can demonstrate an understanding of exponential functions.	I need more help with becoming consistent with the criteria.	I can: Solve exponential equations in which the bases are/ are not powers of one another. Given the graph of $y = a^x$, report about the relationship between the value of a and the domain, range, horizontal asymptote and intercepts. Identify whether it represents a growth or decay Identify the transformations of the graph $y = a^x$	I can: Sketch with or with out technology the graphs of exponential functions of the form. Apply strategies for sketching transformations of the graph $y = a^x$ with types of transformations	I can: Explain the role of the horizontal asymptotes for exponential functions. Explain strategies for sketching transformations of the graph $y = a^x$ with multiple types of transformations

Outcome 8a: I can Demonstrate an understanding of the relation of logarithmic and exponential functions including graphing.	I need more help with becoming consistent with the criteria	I can: Express a logarithmic expression as an exponential expression and vice versa. Determine without technology the exact value of a logarithm Given the graph of $y = \log_b x, b > 1$ report about the relationships between the value of b and the domain, range, vertical asymptote, and intercepts. Identify the transformations of the graph	Sketch with or without technology the graphs of logarithmic functions of the form $y = \log_b x, b > 1.$ Apply strategies for sketching transformations of the graph $y = \log_b x, b > 1$ with types of transformations	Explain how to estimate the value of logarithms using benchmarks Explain the role of the vertical asymptote for logarithm functions. Explain strategies for sketching transformations of the graph $y = \log_b x, b > 1$ with multiple types of transformations Demonstrate graphically that $y = \log_b x, b > 1$ and $y=b^x$ are inverses of each other.
Outcome8b: I can demonstrate an understanding of logarithms including laws of logs and solving equations.	I need more help with becoming consistent with the criteria	I can apply the laws of logarithms to determine equivalent expressions for given logarithmic statements involving one step. Apply strategies for solving single step logarithmic equations.	Apply the laws of logarithms to determine equivalent expressions for given logarithmic statements involving multi-steps. Apply strategies for solving multi- step logarithmic equations including quadratic and extraneous roots. Demonstrates process, but may	Solve situational questions that involve exponential growth or decay, such as loans, mortgages, and investments Solve situational questions involving logarithmic scales, such as the Richter scale and pH scale. Explain why a value obtained in solving a logarithmic equation

			contain simplification errors.	may be extraneous. Explain strategies for solving logarithmic equations

OUTCOMES	ASSESSMENT RUBRICS			
PC30.10 Demonstrate understanding of polynomials and polynomial functions of degree greater than 2				
Level **Criteria**	**Beginning** **Spend some extra time with the criteria and ask for help.**	**Approaching** **Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.**	**Proficient** **You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.**	**Mastery** **Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.**
Outcome 3a: I can demonstrate understanding of polynomials and polynomial	I need more help with becoming consistent with the criteria.	I can: Divide a polynomial by x-a using either long division or synthetic division. Use the remainder theorem	I can: Factor polynomials of degree 2 and higher using the factor theorem	I can: Fully factor polynomials of degree 2 or higher without error. Solve problems

functions of degree higher than 2 by factoring		to determine the remainder Use the factor theorem to determine if x-a is a factor of P(x) Identify the degree, leading coefficient, and constant of each polynomial function		
Outcome 3b: I can demonstrate understanding of polynomial functions of degree higher than 2 by graphing	I need more help with becoming consistent with the criteria	I can: Identify polynomial functions and their characteristics Match a polynomial function with its graph based on degree, end behavior, number of x intercepts Given a graph determine the least possible degree, sign of leading coefficient, x intercepts, intervals where functions is positive and negative Analyze factored equations to sketch polynomial functions	I can analyze Equations to sketch Polynomial functions	I can solve problems Explain relationships between zeros and roots.

OUTCOMES	ASSESSMENT RUBRICS
PC30.11 Demonstrate understanding of radicals and rational functions with restrictions on the domain	

Level / Criteria	**Beginning** Spend some extra time with the criteria and ask for help.	**Approaching** Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	**Proficient** You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	**Mastery** Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.
Outcome 2a: I can demonstrate understanding of radical functions	I need more help with becoming consistent with the criteria.	I can demonstrate the process of: • sketch the graph of $y = \sqrt{(x)}$ using a table of values • identify the role of a, b, h, k given an equation	I can use transformations to graph $y - k = a\sqrt{b(x - h)}$ I can explain the role of a, b, h, and k given an equation. Sketch the graph of $y = \sqrt{f(x)}$ given the graph of $y = f(x)$ I can compare the domains and ranges of $y = \sqrt{f(x)}$ and $y = f(x)$ Graphically solve Radical Equations with technology	I can determine a radical function from its graph Explain level 2 and 3 concepts Express level 2 and 3 answers in simplest form with no errors
Outcome 9a: I can demonstrate understanding of rational functions. This outcome has a technology based indicator when finding the	I need more help with becoming consistent with the criteria	I can determine the characteristics of the graphs of rational functions including vertical asymptotes, points of discontinuity (holes), horizontal asymptotes	I can determine the equation of oblique asymptotes. I can graph rational functions	I can explain concepts related to graphing rational functions. I can create a rational function given a set of characteristics. I can check if a graph crosses horizontal asymptotes.

approximate solutions				I can graph rational functions with oblique asymptotes.

OUTCOMES	ASSESSMENT RUBRICS			
PC30.12 Demonstrate understanding of permutations, including the fundamental counting principal PC30.13 Demonstrate understanding of combinations of elements, including the application to the binomial theorem				
Level **Criteria**	**Beginning** **Spend some extra time with the criteria and ask for help.**	**Approaching** **Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.**	**Proficient** **You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.**	**Mastery** **Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.**
Outcome 11a: I can demonstrate understanding of permutations, combinations, and the binomial theorem	I need more help with becoming consistent with the criteria.	When specified I can demonstrate the process to: • Solve basic permutations • Apply the fundamental counting principle • Solve basic combinations I can complete a missing row of Pascal's triangle I can determine missing numbers in expansions	When specified I can demonstrate the process to solve: • Permutations with repetitions I can determine whether a level 2 question is a permutation or a combination and solve. I can apply the binomial theorem to expansions of (x+y)	I can solve equations involving permutations and combinations. I can apply the binomial theorem to expansions of (ax+by) Relate the binomial theorem to Pascal's triangle. Explain concepts relating to permutations and combinations.

		involving the binomial theorem.		Complete all questions without error.