Factoring

    1. Factor polynomials requiring more than one method of factoring i.e. GCF and difference of two squares, factoring by grouping, etc.

    2. Solve equations by factoring and using the Zero Product Property (ZPP)

Rational expressions

    1. Simplify rational expressions, i.e. common factors etc..

    2. Multiply/ divide rational expressions.

    3. Use the LCM to add/ subtract rational expressions.

    4. state any values that would make the expression undefined.

Rational Equations

    1. Solve rational equations including excluding extraneous solutions.

Graphing Rational Functions

    1. Graph a rational function including all its asymptotes and any point discontinuities.

    2. Identify the coordinate of a point discontinuity from a graph or equation.

    3. Identify the equation of vertical, horizontal and slant asymptotes from a graph or equation.

    4. Identifying the intercepts of a rational function from a graph or an equation.

    5. Identify the end behavior of a rational function from a graph or an equation.

Domain and Range

    1. Identify where an expression of any type of function is undefined. (Rational/Exponential/Logs/trigonometric/inverse trigonometric functions)

    2. Identify where an equation of any type of function is undefined.

    3. Write the domain and range of a function given its graph.

Log expressions and properties:

    1. Write an equation, given in exponential form, in log form, and vise versa.

    2. Use the inverse, product, quotient and/or power properties of logarithms to condense or expand a logarithm.

    3. Use the inverse, product, quotient and/or power properties of logarithms to evaluate a logarithm.

    4. Use the properties of exponents to evaluate an expression, including negative and rational exponents.

Logarithmic and Exponential Equations

    1. Solve a logarithmic equation with and without a calculator and by applying properties of logarithms.

2. Solve a logarithmic equation with and without a calculator using change of base.

3. Solve exponential equations by getting all bases to be the same and then setting exponents equal.

4. Solve exponential equations by switching in logarithmic form.

Graphing/Writing Logarithmic Functions:

1. Graph a logarithmic function in the form: $y = A\log_b(x - h) + k$

2. Write the equation of the asymptote of the log function.

3. Find the intercepts and end behavior of a log function.

4. Write the equation of logarithmic function from its graph.

Angle Fundamentals:

1. Determine what quadrant an angle is in

2. Determine co-terminal angles given an angle in radians and/or degrees

3. Determine a reference angle given an angle in radians and/or degrees

4. Convert an angle's measure from radians to degrees or from degrees to radians.

Linear and Angular Speed/ Sector Area/Arc Length

1. Be able to solve for any missing variable (arc length, circumference, measure of an arc (angle), radius) in length of an arc problems.

2. Be able to solve for any missing variable (area of sector, area of a circle, measure of an angle, radius) in area of a sector problems.

4. Be able to interpret and solve application problems dealing with arc length and area of a sector.

5. Understand the difference between angular and linear speed

6. Calculate the angular and/or linear speed of an object in circular motion

Unit Circle Fundamentals:

1. understand how the values on the unit circle are defined.

2. determine the values of the six trigonometric functions of a given angle using the unit circle.

3. determine the values of the remaining five trigonometric functions of an angle given one of the functions and the quadrant in which the angle lies.

4.Given the sign(+/-) of two non-reciprocal trigonometric functions of the same angle determine the quadrant of the angle. Then find the remaining four trigonometric functions.

5. Rewrite tangent, cotangent, secant, and cosecant functions in terms of sine and cosine.

Graphing Trigonometric Functions:
    1.   graph one full cycle of a trigonometric function.
    2. identify the maximum or minimum points of a sine or cosine function over its entire domain.
    3. identify the y-intercept and the x-intercept(s) of a sine or cosine function over its entire domain.
    4. identify the amplitude (A value), frequency (B value), period, phase shift, vertical shift, and equation of the midline(sinusoidal axis) of a trigonometric function given an equation in the form: f(x)=Asin(B(x-h))+k or g(x)=Acos(B(x-h))+k
    5. Match equation(s) with a graph or a sine or cosine function.

Writing Trigonometric Functions:
    1. identify the amplitude (A value), frequency (B value), period, vertical shift, and equation of the midline (sinusoidal axis) of a trigonometric function from its graph.
    2. Given a graph of a function determine the equation in the form
    $y = Asin(B(x - h)) + k$ or $y = Acos(B(x - h) + k$
     (using sine and cosine, positive A and negative A values.)
    3. Given a situation, identify the amplitude, vertical shift, phase change, frequency and period of a sinusoidal function.

Solving Trigonometric Equation:
    1. solve trigonometric equations on a given domain or solve for the general solution as directed with and without the calculator.
    2. Solve equations with periods other than 2π, requiring factoring, or requiring simplification with an identity. .
    3. make predictions about the number of solutions an equation will have based on the graph of a function.
    4. Solve and interpret application problems involving trigonometric equations with and without a calculator.

Trigonometric Identities
    1. Use the reciprocal identities to simplify and evaluate expressions.
    2. Use the pythagorean identities to simplify and evaluate expressions
    3. Prove sum and difference of tangent and cotangent.
    4. use the sum and difference formulas for sine and cosine.
    5. use the double angle formulas for sine and cosine to simplify and evaluate expressions.

6. Prove trigonometric identities whose proof could include reciprocal identities, pythagorean identities, and double angle identities.

Inverse trigonometry:

1. evaluate inverse sine, inverse cosine, and inverse tangent functions using exact values.(This includes identifying an expression as undefined as necessary)

2. Know the restricted ranges for each arcsin, arccos, and arctan functions.

Law of Sines and Law of Cosines.

1. Use the law of sines to solve for a missing side or angle in a triangle.

2. Use the law of cosines to solve for a missing side or angle in a triangle.

3. Apply both laws in an application problem.