Advanced Math Concepts
3rd Grading Period

Power Objectives:

- Interpret functions that arise in terms of the context and analyze functions using different representations. (P.O. #7)
- Extend the domain of trigonometric functions using the unit circle, model periodic phenomena with trigonometric functions and prove and apply trigonometric identities. (P.O.# 10)

Academic Vocabulary:

- amplitude
- central angle
- cosine
- cycle
- midline
- period
- periodic function
- phase shift
- radian
- sine
- tangent

Trigonometry

Enduring Understandings:

- The measure of an angle in standard position is the input for two important functions. The outputs are the coordinates (called cosine and sine) of the point on the terminal side of the angle that is 1 unit from origin.
- An angle with full circle rotation measure 2π radians. An angle with a semicircle rotation measures π radians.
- The cosine function corresponds with the x-coordinate of the point where the terminal side of the angle intersects the unit circle.
- The sine and cosine functions can be used to determine the tangent function and the reciprocal trigonometric functions, csc θ, sec θ, and cot θ.
- If you know the measures of enough parts of a triangle, you can solve the triangle.

Essential Questions:

- How can you model periodic behavior?
- If you know the value sin θ, how can you find cos θ, csc θ, sec θ, cot θ ?
- How do you determine the sign of the trig functions?
- How does the unit circle relate to the trig functions?
- How can our use the unit circle to determine the exact values of the trig functions?
- How do the trigonometric functions relate to the trigonometric ratios for a right triangle?