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| **LG#A211** |  | **Standards:** | **F-TF.1.1, F-TF.1.2, F-TF.2.5, F-TF.3.8** |
| **4.0** | **In addition to Score 3.0, in-depth inferences and applications that go beyond instruction to the standard.****The student will be able to:*** Construct a trigonometric function to model a situation given the amplitude, midline, and frequency or period.
* Construct an argument for why the right triangle definition of sine and cosine does not allow negative values, while the unit circle does.

**No major errors or omissions regarding the score 4.0 content.** |
| **3.5** | In addition to 3.0, in-depth inferences and applications with partial success. |
| **3.0** | **Students will be able to model periodic phenomena using the unit circle and trigonometric functions. Prove and apply trigonometric identities.****The student will be able to:*** Understand radian measure of an angle as the length of the arc on the unit circle subtended by the angle. (F-TF.1.1)
* Interpret as radian measures of angles traversed counterclockwise around the unit circle. (F-TF.1.2)
* Choose trigonometric functions to model periodic phenomena with specified amplitude, frequency, and midline. (F-TF.2.5)
* Prove the Pythagorean identity $sin^{2}θ+cos^{2}θ=1$. (F-TF.3.8)

**No major errors or omissions regarding the score 3.0 content (simple or complex).** |
| **2.5** | No major errors or omissions regarding 2.0 content and partial knowledge of 3.0 content. |
| **2.0** | **The student recognizes and describes specific terminology such as:**

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| * Radian
 | * Amplitude
 | * Pythagorean Identity
 |
| * Degree
 | * Frequency
 | * Special Right Triangles
 |
| * Arc Length
 | * Midline
 | * Periodic
 |
| * Unit Circle
 | * Absolute Value
 | * Trigonometric Function
* Coterminal Angles
 |

**The student will be able to:*** Convert between radians and degrees for any angle. (F-TF.1.1)
* Explain how the unit circle in the coordinate plane enables the extension of trigonometric functions to all real numbers. (F-TF.1.2)
* Use Pythagorean Identity $sin^{2}θ+cos^{2}θ=1$ to calculate trigonometric ratios.

(F-TF.3.8) |
| **1.5** | Partial knowledge of the score 2.0 content, but major errors or omissions regarding score 3.0 content. |
| **1.0** | With partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.5** | With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes. |
| **0.0** | Even with help, no understanding or skill is demonstrated |