

Course Title & Number: MAT*H185 Trigonometric Functions

Competency Area: **QUANTITATIVE REASONING** (Goal: Students will learn to recognize, understand, and use the quantitative elements they encounter in various aspects of their lives. Students will develop a habit of mind that uses quantitative skills to solve problems and make informed decisions.)

Faculty submitting the Learning Outcomes: Jane Wampler, Harry Burt, Ruth Urbina-Lilback, Katie Lozo

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[Instructions: *Please match the Learning Outcomes in the left hand column to those of the course you are submitting for Gen Ed approval. List the corresponding course outcomes in the right hand column to indicate a match.***]**

BOR TAP's Learning Outcomes	Corresponding Outcomes for Course Named Above
1. Represent mathematical and quantitative information symbolically, graphically, numerically, and verbally.	B1. Graph each of the six trigonometric functions and be able to find the amplitude, period, frequency and phase shift for each. B2. Find the amplitude, period and frequency for the equation of simple harmonic motion.
2. Apply quantitative methods to investigate routine and novel problems. This includes calculations/procedures, mathematical and/or statistical modeling, prediction, and evaluation.	A1. Represent an angle in either degree or radian measure and convert angles between each type of measure. A2. Compute arc length, linear velocity and angular velocity in an appropriate application. A3. Determine the trigonometric function value for any acute angle and be able to use this concept to solve applied problems. A4. Determine the trigonometric function value for any angle employing the use of reference angles. A5. Determine the trigonometric function value of a real number through the use of the circular function concept. C3. Determine an exact value for a specific angle by applying the trigonometric identities. C4. Solve a trigonometric equation by using algebraic principles and trigonometric identities. D1. Find the angle determined by any inverse trigonometric function. E1. Solve an oblique triangle using the law of sines and/or the law of cosines. E2. Use the law of sines and/or the law of cosines to solve applied problems including those involving heading, bearing and area.

	E3. Find the components for a vector and perform simple vector operations.
3. Interpret mathematical and quantitative information and draw logical inferences from representations such as formulas, equations, graphs, tables, and schematics.	<p>B1. Graph each of the six trigonometric functions and be able to find the amplitude, period, frequency and phase shift for each.</p> <p>B2. Find the amplitude, period and frequency for the equation of simple harmonic motion.</p> <p>E1. Solve an oblique triangle using the law of sines and/or the law of cosines.</p> <p>E2. Use the law of sines and/or the law of cosines to solve applied problems including those involving heading, bearing and area.</p>
4. Evaluate the results obtained from quantitative methods for accuracy and/or reasonableness.	Evaluate the results obtained from quantitative methods for accuracy and/or reasonableness.
	<p><i>Additional Outcomes</i></p> <p>C1. Simplify a trigonometric expression using the fundamental identities.</p> <p>C2. Verify a trigonometric identity.</p> <p>D2. Identify the graph of an inverse trigonometric function.</p> <p>E4. Use vectors to solve applied problems.</p> <p>F1. Graph points and equations in the polar coordinate system.</p> <p>F2. Convert between the rectangular and polar coordinate systems.</p> <p>F3. Graph a polar equation.</p>