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| **Assignment – 6.3** | **R** | **1** | **2** | **3** | **4** |
| make connections between trigonometric ratios and the graphical and algebraic representations of the corresponding trigonometric functions and between trigonometric functions and their reciprocals, and use these connections to solve problems; |  |  |  |  |  |

1. Complete the table using a calculator and the unit circle shown to approximate each value to two decimal places. Also write the angle in degrees in the top row. (this is the only time you will use degrees in this assignment – so make sure your calculator is in radians)

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1. Plot the ordered pairs [ is plotted horizontally and is plotted vertically] and sketch the graph of the function by drawing a smooth curve through the points.



1. On the same pair of axes, plot the ordered pairs and sketch the graph of the function by drawing a smooth curve through the points.



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1. State the domain, range, amplitude, equation of the axis, and period of each function.

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| Domain |  |  |
| Range |  |  |
| Amplitude |  |  |
| Equation of the Axis |  |  |
| Period |  |  |

1. Recall that . Use the values from your table in #1 to calculate the value of . Use a calculator to confirm your results, to two decimal places.



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1. What do you notice about the value of the tangent ratio when ?



1. What do you notice about the value of the tangent ratio when ?



1. Based on your observations in 6 and 7, what characteristics does this imply for the graph of ?



1. What do you notice about the value of the tangent ratio when and ? Why does this occur?



1. On a new pair of axes, plot the ordered pairs [ is plotted horizontally and is plotted vertically] and sketch the graph of the function by drawing a smooth curve through the points, where .



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1. Determine the domain, range, amplitude, equation of the axis, and period of this function, if possible.
2. Where are the vertical asymptotes for the tangent graph located when , and what are their equations? Explain why they are found at these locations.



1. How does the period of the tangent function compare with the period of the sine and cosine functions?
2. What would be the period of the function f(x) = tan (3x)?