PERTH MODERN SCHOOL

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INDEPENDENT PUBLIC SCHOOL

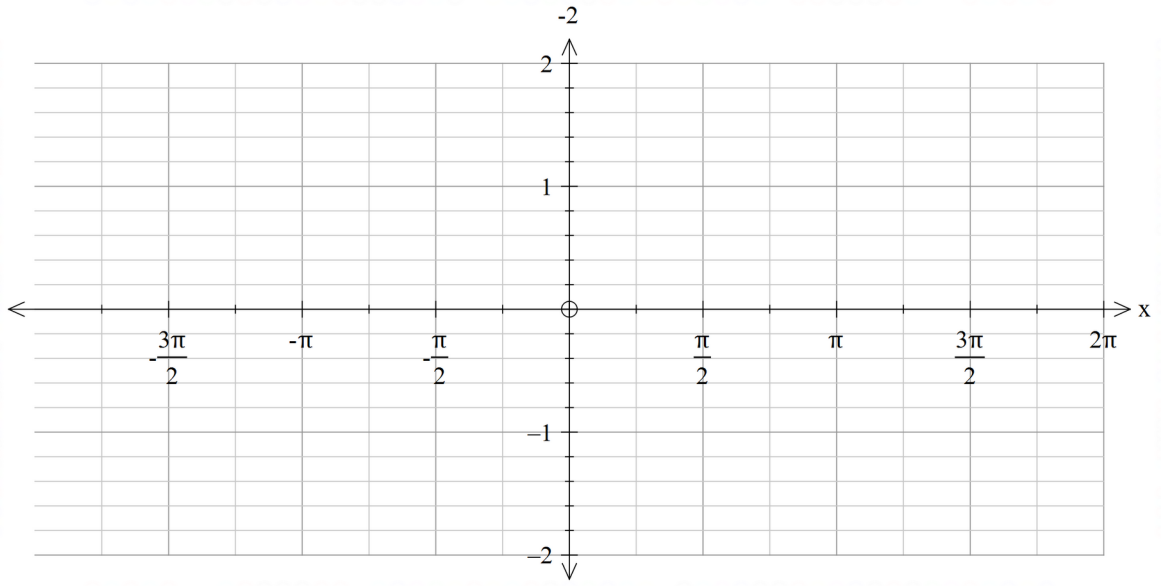
Maths Methods 11
2019 Investigation 2
Take Home

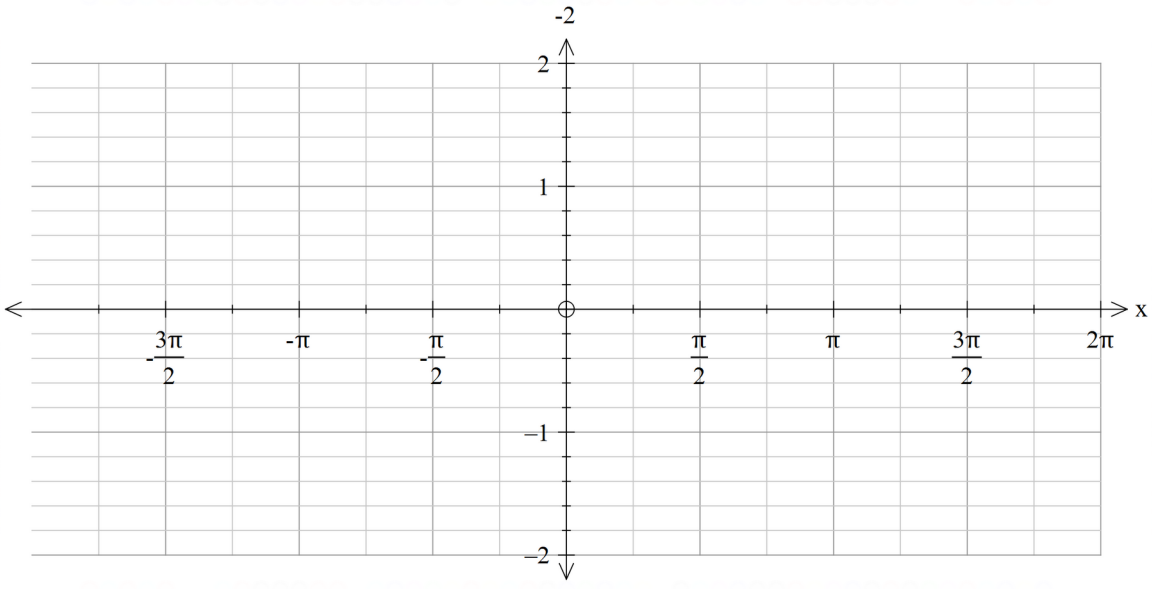
Trigonometric Equations and Identities

NAME: _____ Teacher:_____

Part I

1. Graph $y = \sin(x)$ and $y = \cos(x)\tan(x)$ over the domain $-2\pi \leq x \leq 2\pi$. Graph the curves on separate grids using the same range and scale. What do you notice?





2. Make and analyse a table of values for these functions in multiples of $\frac{\pi}{6}$ over the domain $-2\pi \leq x \leq 2\pi$. Describe your findings.

3. By examining both the graphs and the table of values, justify whether or not the functions are identical.

4. For what values of x will the expressions $\sin(x)$ and $\cos(x)\tan(x)$ over the given domain, will not be not equal?

Part II

1. Consider the equation $\sin(x) = \sqrt{1 - \cos^2 x}$.

   a. Identify a value for x that will make the equation true.

   b. Identify a value for x that does not work for the equation above.

   c. Hence provide 2 reasons why the equation above is not an identity.

Part III

Using your results from Part I and Part II, explain the difference between a Trigonometric Equation from an Identity.