SOEN 6011 Project - Calculator

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This document is shows basic understanding of hyperbolic sin function:

1 Function:

Given functionality for calculation is sinh(x) = (e^x - e^{-x})/2

2 Definition:

The hyperbolic functions are defined in terms of the exponential function.they have similar names to the trigonmetric functions

For the given function ,e is the base of natural log .

Approximate value of the e is 2.71828

3 Domain and Co-Domain

Domain of the hyperbolic sin function is all real numbers

4 Characteristics:

sinh(x) ≈ cosh (x) for large x. sinh(x) ≈ -cosh (x) for large negative x

sinh(x) is odd function , sinh(-x) = - sinh(x)

The graph of sinh x is always between the graphs $e^x/2$ and $e^{-x}/2$

sinh(x) has period of $2\pi\imath$

5 References:

1 http://www.mathcentre.ac.uk/resources/workbooks/mathcentre/hyperbolicfunctions.pdf

2 https://www.analyzemath.com/DomainRange/domain_range_functions.html

3 http://functions.wolfram.com/ElementaryFunctions/Sinh/04/

4 https://reference.wolfram.com/language/ref/Sinh.html