Calculus: Integration References

By Jirawut Thongraar

Last updated on: 25 December 2019

This document is private and personal to its author. Usage, duplication, publication, replication, modification, and/or distribution in whole or in part of this document is prohibited. The author makes no guarantees regarding the validity, correctness, and completeness of the information provided. In no event shall the author be liable for any direct, indirect, or consequential damages, or any damages whatsoever arising out of or in connection with the information provided by this document.

## Trigonometric Function References

Pythagorean Identity:

Divide by :

Sum of Angle Formulas:

Power Reduction Derivation:

Product to Sum Derivation:

Cofunction Identities:

Identity:

## Substitution

Let

## Integration by Parts

## Trigonometric Functions

|  |  |  |
| --- | --- | --- |
| If is odd: | If is odd: | If both are even:  Use Power Reduction |

|  |  |  |
| --- | --- | --- |
| If is odd: | If is even: | If is even and is odd:  Use |

## Trigonometric Substitutions

|  |  |  |
| --- | --- | --- |
| Let | Let | Let |

## Partial Fraction Decomposition

Let be proper rational function.

Factorize into linear factors or quadratic factors:

For each factor, decompose into:

Then, is equal to the sum of all decomposed factors.