

CORDIC in Matlab / Octave

- Octave Special Functions

Copyright (c) 2011 Young W. Lim.

Permission is granted to copy, distribute and/or modify this document under the terms of the GNU Free Documentation License, Version 1.2 or any later version published by the Free Software Foundation; with no Invariant Sections, no Front-Cover Texts, and no Back-Cover Texts. A copy of the license is included in the section entitled "GNU Free Documentation License".

Please send corrections (or suggestions) to youngwlim@hotmail.com.

This document was produced by using OpenOffice and Octave.

Based on the following site:

John Burkardt

CORDIC Approximation of Elementary Functions

http://people.sc.fsu.edu/~jburkardt/m_src/cordic/cordic.html

angle_shift

$$\text{if } \alpha < \beta \quad \gamma = \beta - \text{mod}(\beta - \alpha, 2\pi) + 2\pi$$

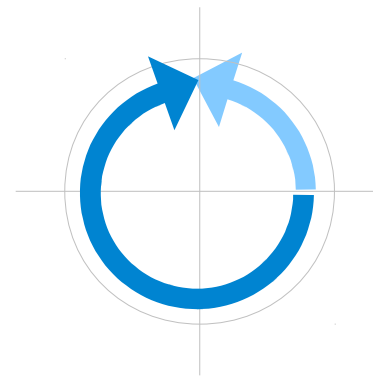
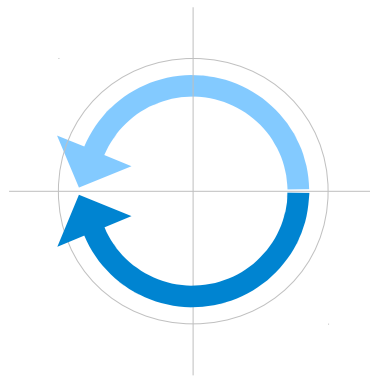
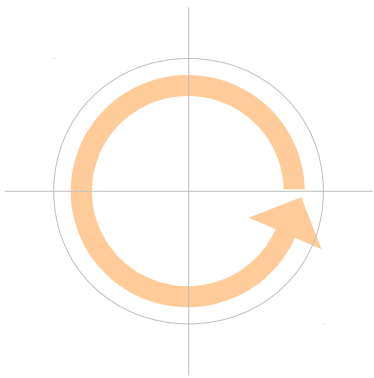
$$\text{else} \quad \gamma = \beta + \text{mod}(\alpha - \beta, 2\pi)$$

$$\beta = -\pi$$

$$\text{if } \alpha < -\pi \quad \gamma = \pi - \text{mod}(-\pi - \alpha, 2\pi)$$

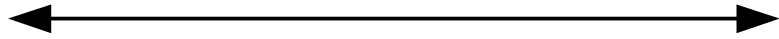
$$\text{else} \quad \gamma = -\pi + \text{mod}(\alpha + \pi, 2\pi)$$

$$-\pi < \gamma < +\pi$$



angle_shift

$$\begin{array}{ll} \text{if } \alpha < -\pi & \gamma = \pi - \text{mod}(-\pi - \alpha, 2\pi) \\ \text{else} & \gamma = -\pi + \text{mod}(\alpha + \pi, 2\pi) \end{array} \left. \vphantom{\begin{array}{l} \text{if } \alpha < -\pi \\ \text{else} \end{array}} \right\} -\pi < \gamma < +\pi$$



References

[1] <http://en.wikipedia.org/>

[2] http://people.sc.fsu.edu/~jburkardt/m_src/cordic/cordic.html