Inverse Trigonometric Functions

Spoken Tutorial Project
http://spoken-tutorial.org
National Mission on Education through ICT
http://sakshat.ac.in

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Learning Objectives

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We will learn to use GeoGebra to,

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- **Plot graphs of inverse trigonometric functions**

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We will learn to use GeoGebra to,

- **Plot graphs of inverse trigonometric functions**
- **Compare them to graphs of trigonometric functions**
- **Create check boxes to group and show/hide functions**

Pre-requisites

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- **GeoGebra interface**

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- **Trigonometry**

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- **GeoGebra interface**
- **Trigonometry**
- **For relevant tutorials, please visit our website**
  www.spoken-tutorial.org

System Requirement

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- **Ubuntu Linux OS v 14.04**

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- **GeoGebra 5.0.388.0-d**

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- **Interchange x and y axes**

Inverse Trigonometric Functions

- *e.g., If* $sin^{-1}z$ *(or arcsinz)* $= w$*, then* $z =$ *sinw*
- **Restrict domain of trigonometric function, define principal value**
- **Interchange x and y axes**
- **Change curvature of trigonometric function graph**

Cosine and Inverse Cosine Functions

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- **Cosine function f_C in domain $[-2\pi, \alpha]$**

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- **Inverse cosine function i_C in domain $[-1, 1]$**

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- **Cosine function $\mathbf{f}_C$ in domain $[-2\pi, \alpha]$**
- **Inverse cosine function $\mathbf{i}_C$ in domain $[-1, 1]$**
- $\mathbf{P}_C(cos(\alpha), \alpha)$

Tangent and Inverse Tangent Functions

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- **Tangent function f_T in domain $[-2\pi, \alpha]$**

Tangent and Inverse Tangent Functions

- **Tangent function f_T in domain $[-2\pi, \alpha]$**
- **Inverse tangent function i_T in domain $[-\infty, \infty]$**

Tangent and Inverse Tangent Functions

- **Tangent function $\mathbf{f}_T$ in domain** $[-2\pi, \alpha]$
- **Inverse tangent function $\mathbf{i}_T$ in domain** $[-\infty, \infty]$
- $\mathbf{P}_T(tan(\alpha), \alpha)$

Summary

We have learnt how to use GeoGebra to,

- **Graph trigonometric functions**
- **Graph inverse trigonometric functions**
- **Create check-boxes to group and show/hide functions**

Assignment

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Plot graphs of,

- **Secant and arcsecant**

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Plot graphs of,

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- **For hints, you can refer to the additional material provided**

About the Spoken Tutorial Project

- Watch the video available at http://spoken-tutorial.org/What_is_a_Spoken_Tutorial
- It summarizes the Spoken Tutorial project
- If you do not have good bandwidth, you can download and watch it

Spoken Tutorial Workshops

The Spoken Tutorial Project Team

- **Conducts workshops using spoken tutorials**
- **Gives certificates to those who pass an online test**
- **For more details, please write to contact@spoken-tutorial.org**

Forum for specific questions

- **Do you have questions in THIS Spoken Tutorial?**
- **Please visit**

  http://forums.spoken-tutorial.org
- **Choose the minute and second where you have the question**
- **Explain your question briefly**
- **Someone from our team will answer**

Acknowledgements

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- More information on this Mission is available at

  http://spoken-tutorial.org /NMEICT-Intro