

# 3D Geometry

**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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**Use GeoGebra to view,**



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**Use GeoGebra to view,**

- **And construct different structures in 3D space**



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Use GeoGebra to view,

- And construct different structures in 3D space
- Solids of rotation of polynomial functions



# Learning Objectives

Use GeoGebra to view,

- And construct different structures in 3D space
- Solids of rotation of polynomial functions
- Trigonometric functions in 3D space



# System Requirement



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- **Ubuntu Linux OS v 16.04**



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- **GeoGebra 5.0.481.0-d**



# Pre-requisites



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- **GeoGebra interface**



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- **GeoGebra interface**
- **Geometry**



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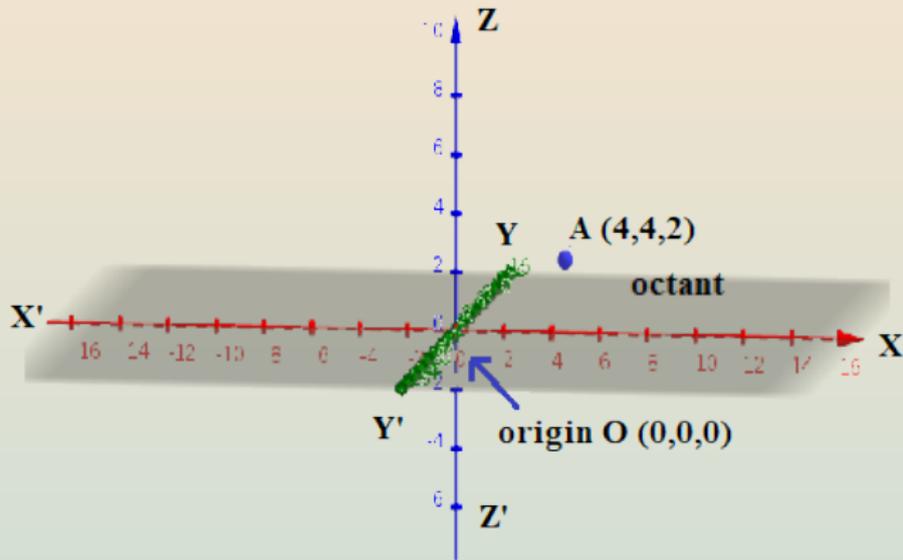
- **GeoGebra interface**
- **Geometry**
- **For relevant tutorials, please visit our website**  
[www.spoken-tutorial.org](http://www.spoken-tutorial.org)



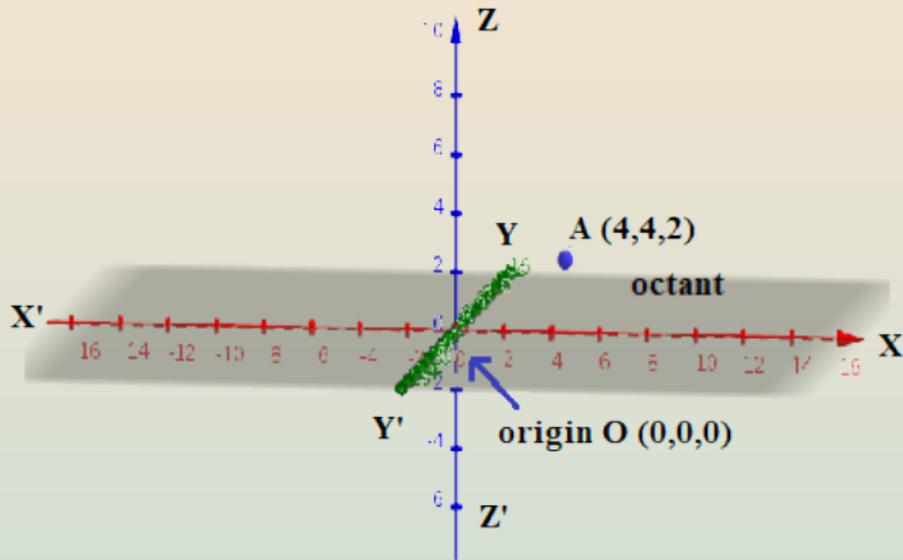
# Rectangular Co-ordinate System



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# Rotation of a polynomial



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- Let us rotate  $f(x) = -2x^4 - x^3 + 3x^2$



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- Let us rotate  $f(x) = -2x^4 - x^3 + 3x^2$
- Part in second quadrant (XY plane), about x axis



# Summary

Use GeoGebra to view,

- And construct different structures in 3D space
- Solids of rotation of polynomial functions
- Trigonometric functions in 3D space



# Assignment



# Assignment

- Construct a prism and a cylinder



# Assignment

- **Construct a prism and a cylinder**
- **Draw lines to pierce the structures and find their intersection points**



# Assignment

- Construct a prism and a cylinder
- Draw lines to pierce the structures and find their intersection points
- Graph the polynomial,  
 $f(x) = x^5 - 7x^4 + 9x^3 + 23x^2 - 50x + 24$



# Assignment

- Construct a prism and a cylinder
- Draw lines to pierce the structures and find their intersection points
- Graph the polynomial,  
$$f(x) = x^5 - 7x^4 + 9x^3 + 23x^2 - 50x + 24$$
- Show the solid formed due to rotation of peak in first quadrant in XY plane



# Assignment



# Assignment

- You fly a kite off a cliff; the kite got dumped into the lake below



# Assignment

- You fly a kite off a cliff; the kite got dumped into the lake below
- You gave out 325 feet of string



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- You fly a kite off a cliff; the kite got dumped into the lake below
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- The angle of declination from the cliff's edge to the kite is 15 degrees



# Assignment

- You fly a kite off a cliff; the kite got dumped into the lake below
- You gave out 325 feet of string
- The angle of declination from the cliff's edge to the kite is 15 degrees
- How high is the cliff?



# About the Spoken Tutorial Project

- Watch the video available at [http://spoken-tutorial.org/What\\_is\\_a\\_Spoken\\_Tutorial](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](mailto: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

- Spoken Tutorial Project is a part of the Talk to a Teacher project
- It is supported by the National Mission on Education through ICT, MHRD, Government of India
- More information on this Mission is available at

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

