Conic Sections - Ellipse

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

Vidhya Iyer
IIT Bombay

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Learning Objectives

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We will learn,

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- **Standard equations and parts of an ellipse**

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We will learn,

- **Standard equations and parts of an ellipse**
- **To use GeoGebra to construct an ellipse**

System Requirement

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- **Ubuntu Linux OS v 14.04**

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- **GeoGebra 5.0.388.0-d**

Pre-requisites

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- **GeoGebra interface**

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- **Conic Sections in geometry**

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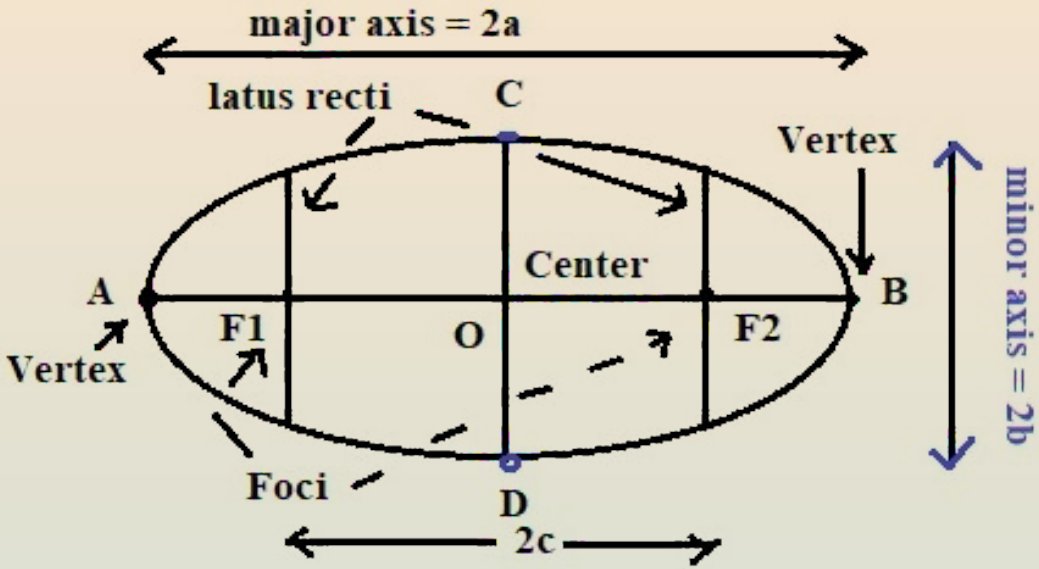
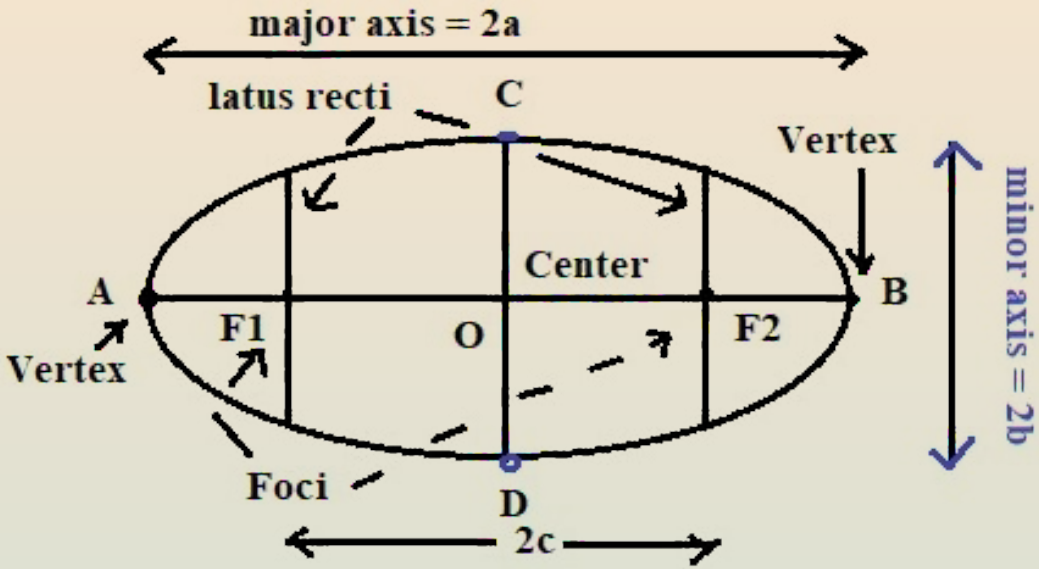
- **GeoGebra interface**
- **Conic Sections in geometry**
- **For relevant tutorials, please visit our website**
  www.spoken-tutorial.org

Ellipse

Ellipse

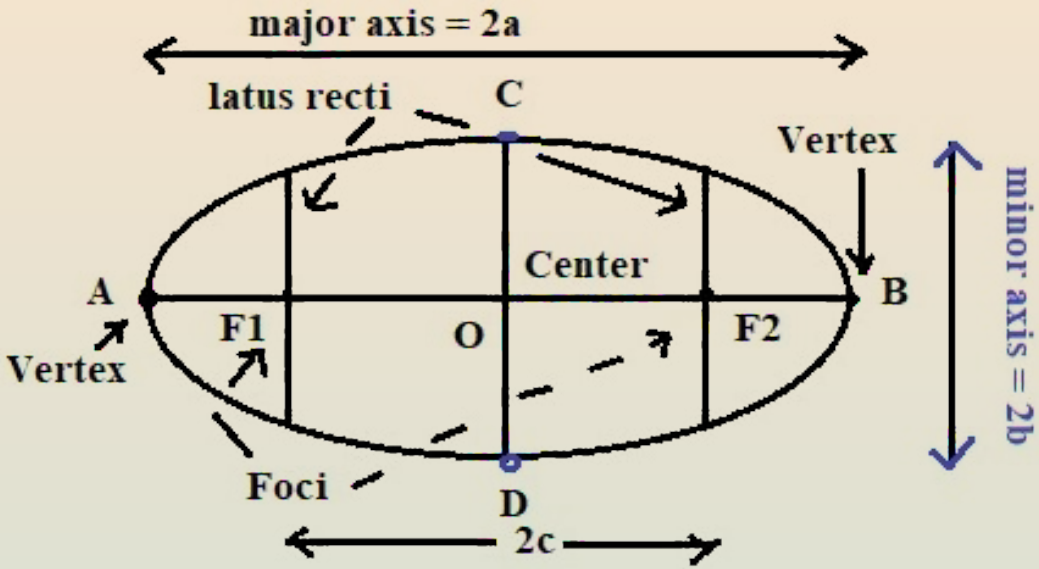

major axis = 2a
latus recti
C
Vertex
minor axis = 2b
Center
A
B
F1
O
F2
Vertex
Foci
D
2c

Ellipse



- An ellipse is the locus of points whose sum of distances from two fixed points is constant

Ellipse



- An ellipse is the locus of points whose sum of distances from two fixed points is constant
- These fixed points are called the foci

Text Box for Ellipse c

Text Box for Ellipse c

- **Major axis $2a = 4$**
- **Minor axis $2b = 2$**
- **$c = 1.732$**
- **$e = 0.866$**
- **latus rectum $= 1$**

Summary

We have learnt how to,

- **Use GeoGebra to construct an ellipse**
- **Look at standard equations and parts of an ellipse**

Assignment

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- **Construct ellipses with,**

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- **Foci** $(\pm 4, 0)$ **and vertices** $(\pm 5, 0)$

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- **Foci** $(0, \pm 5)$ **and vertices** $(0, \pm 13)$

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- **Find their centres and equations**

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- **Construct ellipses with,**
- **Foci** $(\pm 4, 0)$ **and vertices** $(\pm 5, 0)$
- **Foci** $(0, \pm 5)$ **and vertices** $(0, \pm 13)$
- **Find their centres and equations**
- **Calculate eccentricity and length of latus recti, major and minor axes**

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- **Find the co-ordinates of the foci, vertices and co-vertices**

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- **Eccentricity and length of major, minor axes and latus rectum for these ellipses**

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- $\frac{x^2}{4} + \frac{y^2}{25} = 1$

Assignment

- **Find the co-ordinates of the foci, vertices and co-vertices**
- **Eccentricity and length of major, minor axes and latus rectum for these ellipses**
- $\frac{x^2}{4} + \frac{y^2}{25} = 1$
- $36x^2 + 4y^2 = 144$

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

- 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