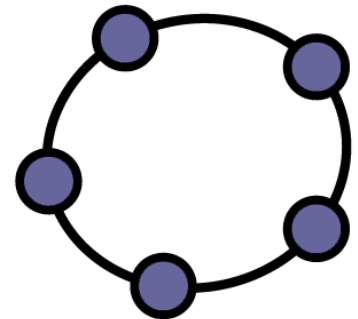


# GeoGebra



## **Creating Teaching Materials**

Markus Hohenwarter, 2006

[www.geogebra.at](http://www.geogebra.at)



# Ways to use GeoGebra

- **Tool for students**  
for doing constructions from scratch
  
- **Tool for teachers**
  - **Visualisation**  
dynamic demonstrations
  
  - **Creating Teaching Materials**  
that foster student activity



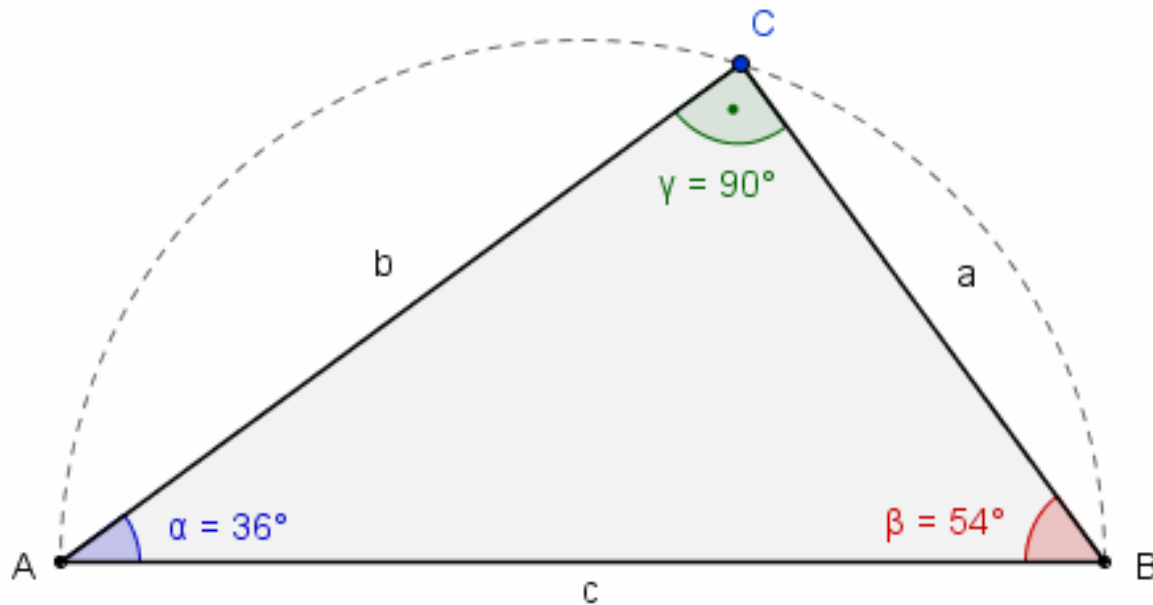
# Creating Teaching Materials

- Static materials
  - Static pictures (png, eps)
  - Construction protocol (html)
  
- Dynamic materials
  - Construction files (ggb)
  - Dynamic worksheets (html)



# Static Pictures

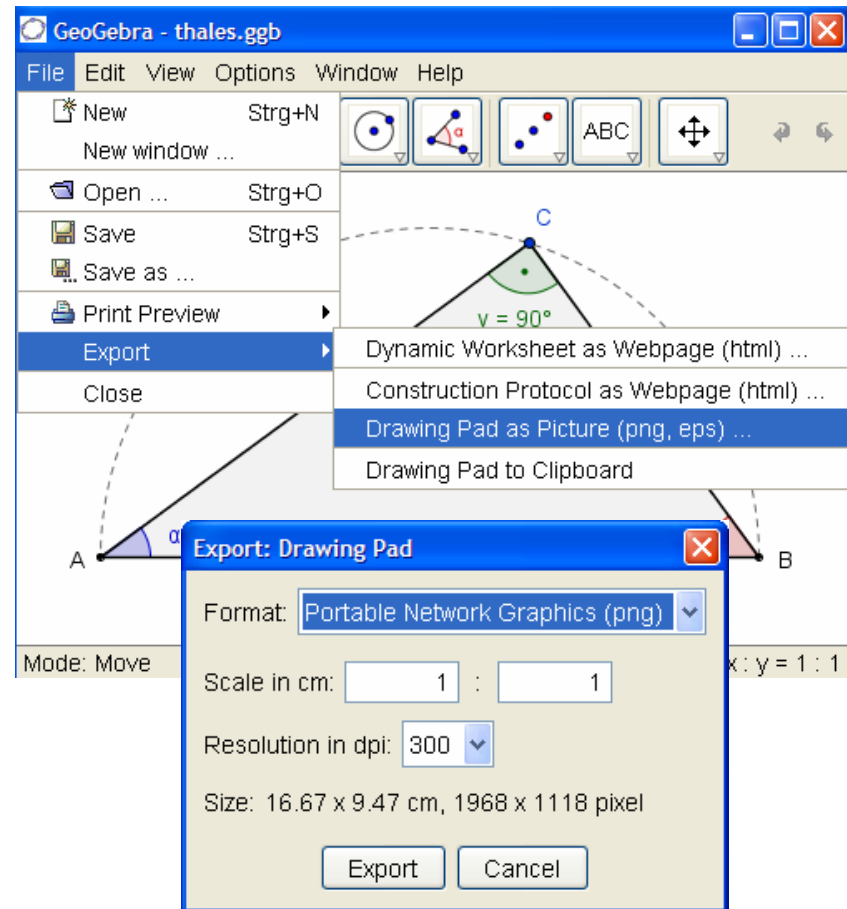
## ■ Example: Theorem of Thales





# Static Pictures

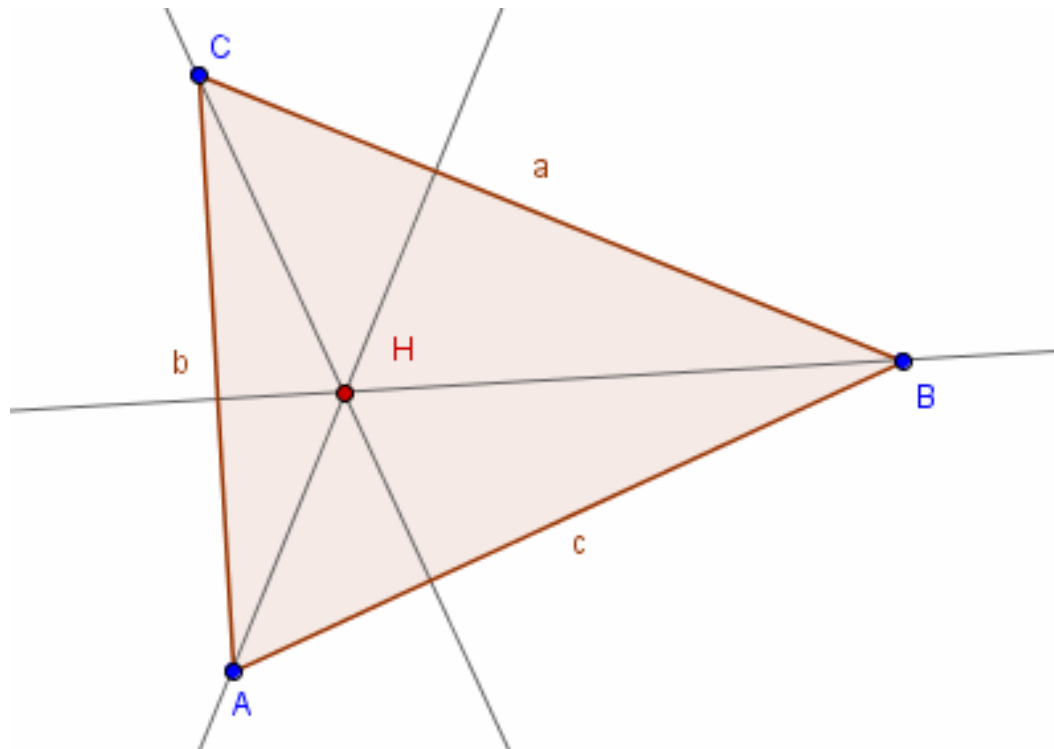
- ✚ move drawing pad to upper left corner
- drag the lower right corner of GeoGebra to set the window size
- File, Export, Drawing Pad as Picture
- Use PNG for Word [thales.png](#)





# Construction Protocol

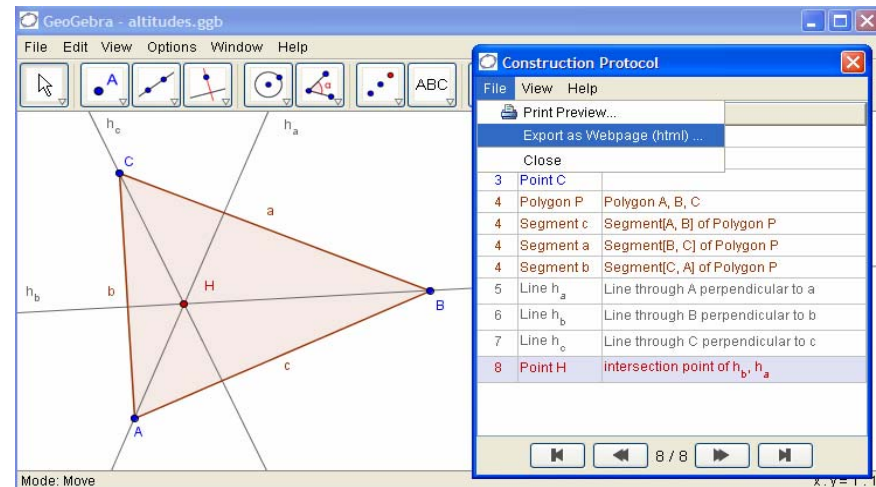
- Example: Altitudes of a triangle



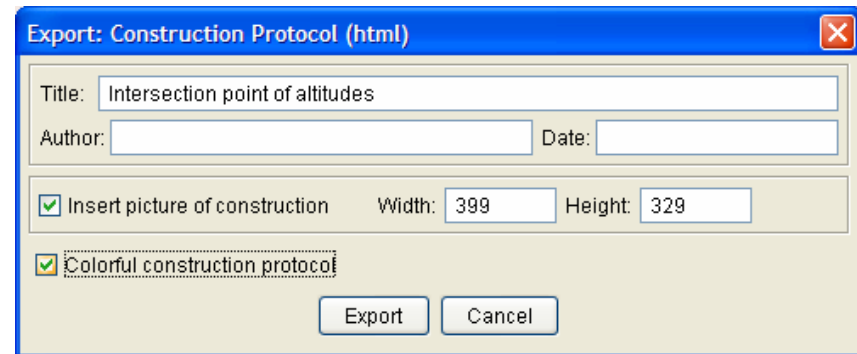


# Construction Protocol

- View,  
Construction  
Protocol



- File, Export  
as Webpage



- [altitudes.html](#)



# Dynamic Worksheet

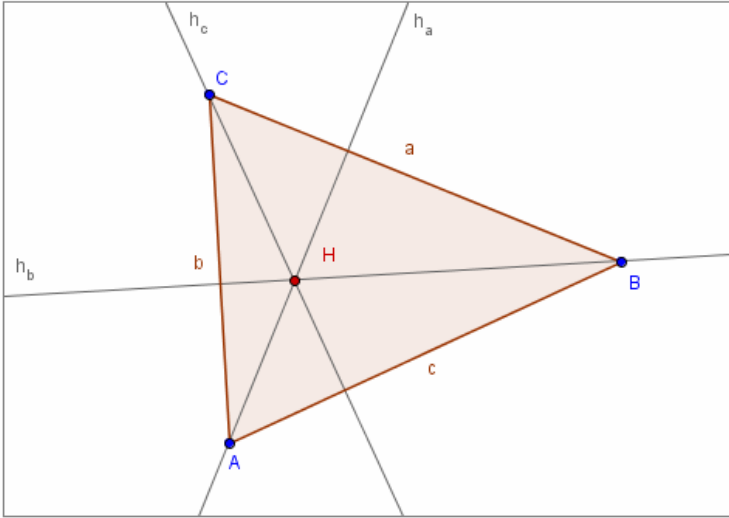
Altitudes - GeoGebra Dynamic Worksheet - Mozilla Firefox

Datei Bearbeiten Ansicht Gehe Lesezeichen Extras Hilfe

file:///C:/Dokumente%20und%20Einstellungen/M Go

## Altitudes

In the following construction you see a triangle with its altitudes.



1) Drag the corners A, B, C of the triangle and describe in your own words how the altitudes are constructed.

2) H is the intersection point of the altitudes. Is it possible for H to move outside the triangle? If yes, when does this happen? If no, why?

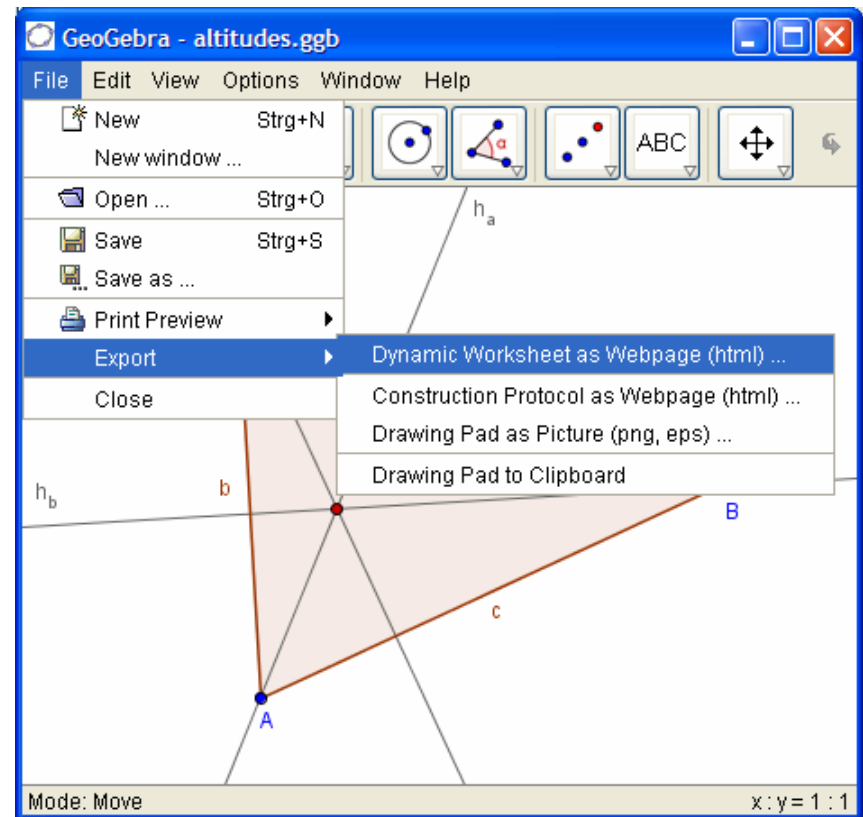
Created with [GeoGebra](#)

Applet geogebra.GeoGebraApplet started



# Dynamic Worksheets

- Set window size as small as possible to save space for text on screen
- File, Export, Dynamic Worksheet as Webpage





# Dynamic Worksheets

Export: Dynamic Worksheet (html) ✕

Title:

Author:  Date:

Text above the construction:  
In the following construction you see a triangle with its altitudes.

Dynamic Worksheet      Width:       Height:

You may open the application window by double clicking the drawing pad.

Button to open application window with construction

Text after the construction:  
1) Drag the corners A, B, C of the triangle and describe in your own words how the altitudes are constructed.  
2) H is the intersection point of the altitudes. Is it possible for H to move outside the triangle? If yes, when does this happen? If no, why?

[altitudes.html](#)



# Using Dynamic Worksheets

- Student opens **html file** with a web browser
  
- Requirements on student's computer:
  - Web browser  
e.g. Internet Explorer, Firefox, Safari
  
  - Java 1.4.2 or later  
free download from [www.java.com](http://www.java.com)
  
  - Note: GeoGebra is NOT needed to use worksheet
  
- Provide **all files** of your dynamic worksheet  
(.html, .ggb, .jar files)



# Editing Dynamic Worksheets

- Change Text

edit **html file** with any text or html editor (e.g. Word, Open Office, NVU, Frontpage)

- Change Construction

edit **\_worksheet.ggb file** with GeoGebra



# Dynamic Mathematics for School

- **GeoGebra** – get the free software  
[www.geogebra.at](http://www.geogebra.at)
- **GeoGebraWiki** – pool of free materials  
[www.geogebra.at/en/wiki](http://www.geogebra.at/en/wiki)
- **GeoGebra User Forum**  
[www.geogebra.at/forum](http://www.geogebra.at/forum)



# GeoGebra

Markus Hohenwarter © 2006

[mhohen@math.fau.edu](mailto:mhohen@math.fau.edu)