

GeoGebra - Lesson 7 - v.ggb3

Using GeoGebra Publishing, Interactive Displays

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Coding thanks to: Steven Lapinski & GeoGebra Forum

Ideas thanks to: Robert Fant and his students!

Mathcast produced with: Camtasia Studio

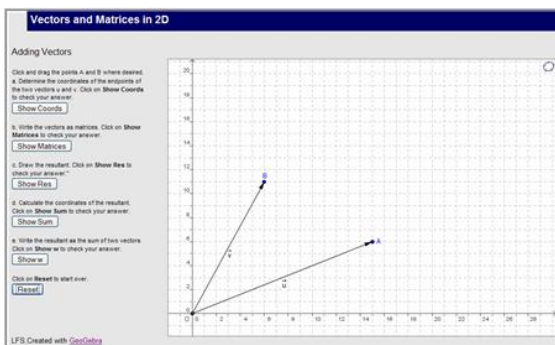
math247.pbwiki.com

Key Concepts from GeoGebra

1. Exporting to an interactive .html/worksheet
2. Adapt the .html file using a pre-prepared .css sheet.
3. Make objects visible/invisible in the worksheet using pre-prepared javascript.

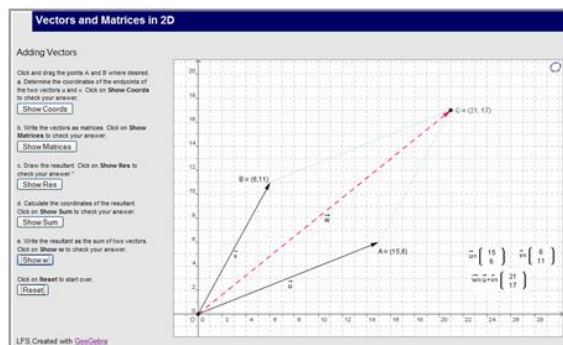
Key Concepts from Mathematics - none

Our goal



Html Export:

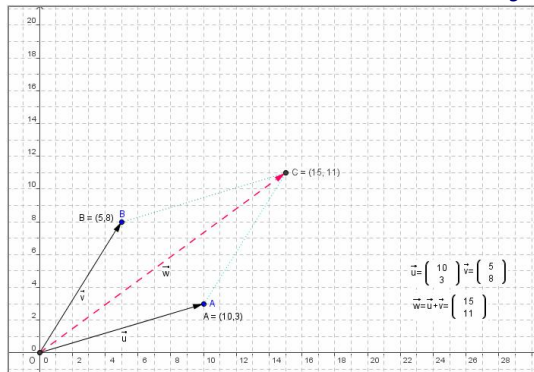
When just loaded



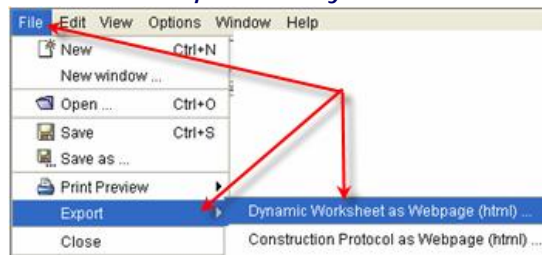
After clicking the buttons!

Script-o-matic

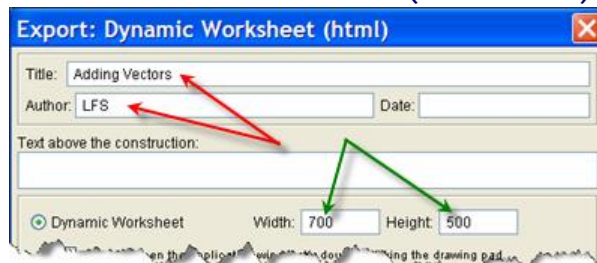
1. Open GeoGebra file from Lesson 6
 - a. Click on File -> Open. Navigate to your file and open it.
 - b. Don't worry that Geogebra has returned to its standard window size – our axes are just as we left them.
2. Alter our file slightly and then save.
 - a. Double-click on points A and B and change the properties of show labels to show only the names.
 - b. Add textboxes with the values of A and B and 'connect' them to these points.
text7 will be "A = (" + (x(A)) + "," + (y(A)) + ")"
text8 will be "B = (" + (x(B)) + "," + (y(B)) + ")"



- c. Click on File -> *Save as* and then type in the filename: **lesson7**
3. Export our file to html/ggb-worksheet
 - a. Click on File -> *Export* -> *Dynamic Worksheet as Webpage (html)*



- b. Type in information as desired (red arrows).



- c. Change the dimensions to 700x500 (green arrows). These dimensions are good for the standard 1024x768 viewing window.

- d. Choose the location – a subfolder is a good idea as 5 files will be generated and then we will add 1 more (and overwrite 2).
(lesson7.html, geogebra.jar, geogebra_jsci.jar, geogebra_export.jar and geogebra_properties.jar – we will add geogebraPage.css and overwrite lesson7.html (see 5 below) and then lesson7.ggb (see 7 below))

4. Write our learning script.

Our script:

We write down our script for vector addition and the variable names of each of the variables we want to make visible/invisible in our script:

We start with just our two points A and B, our two vectors and their labels.

- a. Determine the coordinates of the endpoints of the two vectors u and v. Click on Show Coords to check your answer. **Hide A and B and show text7 and text8.**
 - b. Write the vectors as matrices. Click on Show Matrices to check your answer. **Show text1 and text2.**
 - c. Draw the resultant. Click on Show Res to check your answer." **Show c, d and w and text6.**
 - d. Calculate the coordinates of the resultant. Click on Show Sum to check your answer." **Show C .**
 - e. Write the resultant as the sum of two vectors. Click on Show w to check your answer. **Show text3.**
5. Arrange our html file nicely using a pre-prepared style (.css)
- a. Download the zipped file: lesson7.zip
 - b. Extract and copy the files **geogebraPage.css**¹ and **lesson7.html** into the folder with your exported html. (answer yes when it asks whether to replace existing file lesson7.html...) *Skip down to 7 or if you want to know what has changed read below.*

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6. Open **lesson7.html** file in the web authoring tool of your choice – we are using the freeware Nvu: <http://www.nvu.com/index.php>

Look at the source code

- a. Between the lines in the head part:
 - `<meta name="generator" content="GeoGebra">` and `<style type="text/css"><!--body { font-family:H...`the following line has been added:
 - `<link rel="stylesheet" type="text/css" href="geogebraPage.css">`**This line loads the style sheet.**

¹ Adapted from the one used on e.g. http://teachers.henrico.k12.va.us/math/GeoGebra_Site/circles/Protractor1.html

b. Between the lines in the body part

- `<body>` and

`<table border="0" width="700">`

the following lines have been added:

```
<div id="Top">Vectors and Matrices in 2D</div>
```

```
<div id="left-content">Adding Vectors<br><br>
```

```
<p>Click and drag the points A and B where desired.<br></p>
```

```
<p>a. Determine the coordinates of the endpoints of the two vectors u and v.
Click on <b>Show Coords</b> to check your answer.&nbsp;</p>
```

```
<form> <input value="Show Coords"
```

```
onClick="document.ggbApplet.setVisible('A', false);
```

```
document.ggbApplet.setVisible('B', false);
```

```
document.ggbApplet.setVisible('text7', true);
```

```
document.ggbApplet.setVisible('text8', true);" type="button"></form>
```

```
<p>b. Write the vectors as matrices. Click on <b>Show Matrices</b> to check
your answer.</p>
```

```
<form> <input value="Show Matrices"
```

```
onClick="document.ggbApplet.setVisible('text1', true);
```

```
document.ggbApplet.setVisible('text2', true);" type="button"></form>
```

```
<p>c. Draw the resultant. Click on <b>Show Res</b> to check your answer."</p>
```

```
<form> <input value="Show Res" onClick="document.ggbApplet.setVisible('c',
true); document.ggbApplet.setVisible('d', true);
```

```
document.ggbApplet.setVisible('w', true);
```

```
document.ggbApplet.setVisible('text6', true);" type="button"></form>
```

```
<p>d. Calculate the coordinates of the resultant. Click on <b>Show Sum</b> to
check your answer.</p>
```

```
<form> <input value="Show Sum" onClick="document.ggbApplet.setVisible('C',
true);" type="button"></form>
```

```
<p>e. Write the resultant as the sum of two vectors. Click on <b>Show w</b>
to check your answer.</p>
```

```
<form> <input value="Show w"
```

```
onClick="document.ggbApplet.setVisible('text3', true);" type="button">
```

```
</form>
```

```
<p>Click on <b>Reset</b> to start over.</p>
```

```
<form> <input value="Reset" onClick="document.ggbApplet.reset();" type="button"></form>
```

```
<br><span style="font-size: small;">LFS, Created with <a href="http://
```

```
www.geogebra.at/" target="_blank">GeoGebra</a></span><p></p>
```

```
</div>
```

```
<div id="right-content">
```

These add the top, the left content with our script and puts the geogebra window into the right content.

Note: the button code and the action taken is in the "form".

The name of the object is in the single quotes: 'A' (case sensitive!) and the value false=hide and true=show.

For example, for the button , we have

```
<form> <input value="Show Coords"
onClick="document.ggbApplet.setVisible('A', false);
document.ggbApplet.setVisible('B', false);
document.ggbApplet.setVisible('text7', true);
document.ggbApplet.setVisible('text8', true);" type="button"></form>
```

- c. The part of the code that calls your geogebra file has also been altered. The new part is shaded.

```
<applet name="ggbApplet" code="geogebra.GeoGebraApplet"
codebase="." archive="geogebra.jar" height="500" width="700">
<param name="filename" value="lesson7.ggb">
<param name="framePossible" value="false">
<param name="showAlgebraInput" value="false">
<param name="language" value="en">
<param name="country" value="US">
<param name="showMenuBar" value="false">
<param name="showResetIcon" value="true">
```

Note: the filename of geogebra file is: lesson7.ggb

- d. Down at the bottom in the body part, between the lines:

- ```
</table>
</body>
```

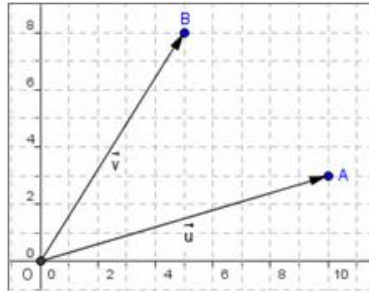
the line has been added

- ```
</div>
```

This closes the right-content div tag.

7. Getting ready to test it.

- a. In GeoGebra, open the file [lesson7.ggb](#) and hide everything (right-click, deselect 'Show object') but O, the two vectors, their labels and their endpoints.



Your file should look like this – you will have the whole of the axes...

- b. Save this file.

8. You are done.

Try out the new lesson7.html – open your folder and double-click on this file. You should have something like:

When just loaded!

After clicking the buttons!

9. Upload it somewhere to show it off 😊