
jsMath: A Method of Including Mathematics in Web Pages

Dear?! I would like to... put **math formulas** of a certain complexity on my website.

I asked myself how can one put them online, because html language does't permit to view them well, except the simple ones like $y = ax^2 + bx + c$ (Wow! I talk with parables! I'm a mix of Jesus and SKY TV!).

Collecting some stuff on the **uorld uàid uèb** (the **world wide web** - or the Internet) I discovered that this topic has been examined (and keep being examined) by many people and that there are many solutions.

The simplest is to write the formula on a specialized software and put an image of the formula in the exact point of the html document. Cons: when one magnifies the fonts the images remain at the same size that had before and a bad work is coming out. If I would save the document to read it later, I have to save also a directory with images and files... If I realize that I typed a wrong formula I have to run the program again, export again the image, load it again on the server... a bad work!

Someone is trying to make a standard language (the MathML if I remeber well...) but except a few number of well known **brauser** (browser) that support it natively (you anyway have to install the fonts for a right viewing), lthe most part need an external
plàghìn
, (plugin) to visualize more or less correctly the result. Otherwise there are commercial solutions (you have to pay), softwares that create the whole pages with formulas included. But from the moment that free is better, we don't consider them.

Just to remain in free topic, using **Openoffice** and it's math formulas editor, I noticed that the syntax is very similar to the **LaTeX**[1] (click here to read more), a
non visual
but typographical
[2]

"document preparation system" I learned some time ago...

At the same time I discovered the existence of a project, called **jsMath** (click here to read more), that aims to visualize in the web pages the formulas written with LaTeX synax, using the **javascript**
language to render
[3]
them and put into html documents, allowing their scalability (zoom in or out).

By now I installed it on my server. And... what does it do? For example it prints:

(tan frac{beta}{2}= pm sqrt {frac{1-cos beta}{1 + cos beta}} = frac{sin beta}{1 + cos beta} = frac{1 - cos beta}{sin beta})

instead of:

$$\tan(\beta/2) = \pm\sqrt{((1-\cos\beta)/(1+\cos\beta))} = \sin\beta/(1+\cos\beta) = (1-\cos\beta)/\sin\beta$$

Don't you find it cool? I find it! And you? Yes? No! Don't know? Ok, ok... bu how one uses it?

First of all we distinguish between readers and authors: the first ones can install LaTeX's fonts (click here
to download them) to speed up the visualization and have the
javascript
turned on in the browser (ops... I wanted to say brauser) and... watch. The second ones have to install in their own server the jsMath files, and chose the working mode:

a) using the application and the fonts stored in the own server ;

b) using only the application jsMath (stored in the server) but fishing the fonts in another place.

In the first one copies the uncompressed directory of the instalation package - the applet (the javascript files that renders the formulas) and the fonts - in the own directory of the server hosting the website. The fonts occupy much space (80 megabytes), so will do this who can afford it, in a certain meaning of the term (space, throughput and... patience).

In the second case, if one doesn't have space on the server, is used only the application pointing to a site where fonts are stored and when the browser find a formula, refers to this site to visualize in the right way (but is slower).

In both cases is better - but not required - to install the LaTeX's fonts used by jsMAth, to speed up the visualization.

In the own HTML pages you have to put in the **head** section the instruction to load the applet and then, in the body to write the formulas in the LaTeX' syntax, and the game is over (look forward).

How can I use it with Joomla!? I thank Mario Luciani (click here to view the website) for bringing the sun on some misty points. I write down the list of operations to do, in a simple and - I hope - easy understandable. I
used the a) solution
and so this list refers to this kind of installation.

1) Download jsMath packages from the website (**jsMath** and **jsMath Image fonts**) and unpack them.

2) Modify the **load.js** file under the directory **jsMath/easy** writing the address of the jsMath directory on your server between captions of the
root:=""
line. If your site address would be "http://www.mywebsite.com" and you would like to copy the jsMath directory on the root directory, the line will be

root="http://www.mywebsite.com/jsMath"
. Save.

3) Copy the jsMath directory on your own server in the location written at point 2.

4) Copy the "fonts" directory from jsMath Image Fonts package under the jsMAth directory in the server (requires time).

Now all is ready to work. You can test the working writing the address http://www.mywebsite.com/jsMath/test (intended as explained at point 2). If you view the formulas and the green message "jsMath appears to be working" all is working well.

5) Modify the index.php file of the Joomla!'s template you are using (in the server, under the directory with the template name, under the template directory of the joomla! one) adding the instruction to load jsMath **<script type="javascript/text" src="http://www.mywebsite.com/jsMath/easy/load.js"></script>**
(address intended as at point 2) in the HEAD section (between <HEAD> and </HEAD> tags). Save the changes.

6) Write the formulas in the articles between opening (and closing) symbols, or between tags to view inline with text or between to view them apart.

It should be all...

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1. **LaTeX**: no, I'm not a latex fetish! Its an achronym meaning **LA**mport **TeX**, where TeX (spell as tèch, like ancient greek) is the document composition system and Mr. LAmport the man who created it. It's a **WY**

SIWYM
system, or
uòt iù sii is uòt iù min
(What You See Is What You Mean).

2. in simple words a visual editor is the one where you view the correction or the changes to the document while you write. Like Word from Microsoft Office or Write from Openoffice. A non visula editor accepts a file with the text and the instructions to print it and then it is compiled (like a programming language) and the document is created. Visual editors are also called **WYS IYWG**
, or
uòt iù sii it iù uill ghèt
(What You See It You Will Get)... maybe. "Typhographic" is referred to impagination rules that TEX has got and offer a very pleasant and surely professional result.

3. In Italian exists a term "renderizzare", taken from the English one "to render" that I don't like too much....