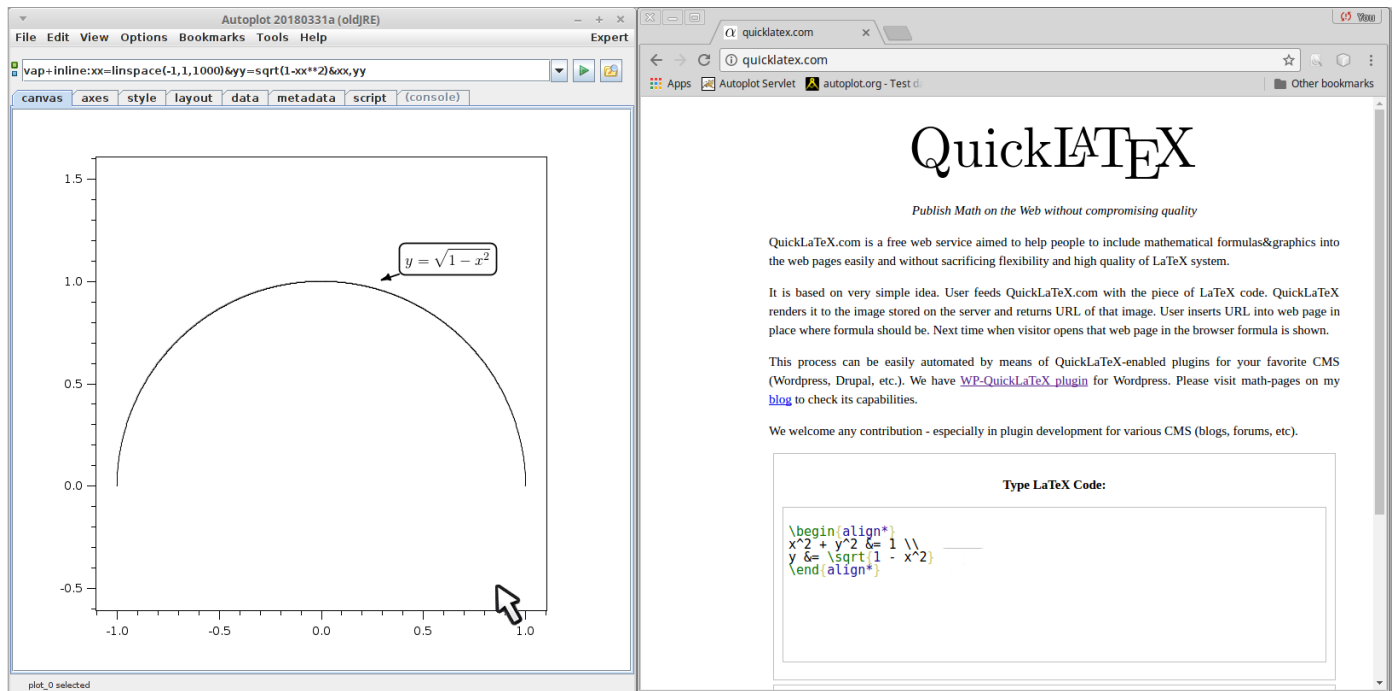


1. In this tutorial, we will use LaTeX to make an annotation.



The image shows two side-by-side windows. The left window is titled "Autoplot 20180331a (old)RE" and displays a plot of a semicircle. The plot has x and y axes ranging from -1.0 to 1.0. A callout box with the equation  $y = \sqrt{1 - x^2}$  points to the curve. The right window is a web browser showing the QuickLaTeX.com website. The website title is "QuickL<sup>A</sup>T<sub>E</sub>X" and the subtitle is "Publish Math on the Web without compromising quality". The main text describes the service and provides LaTeX code for the semicircle plot.

Autoplot 20180331a (old)RE

File Edit View Options Bookmarks Tools Help

vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx\*\*2)&xx,yy

canvas axes style layout data metadata script (console)

1.5  
1.0  
0.5  
0.0  
-0.5

-1.0 -0.5 0.0 0.5 1.0

$y = \sqrt{1 - x^2}$

plot\_0 selected

quicklatex.com

# QuickL<sup>A</sup>T<sub>E</sub>X

*Publish Math on the Web without compromising quality*

QuickLaTeX.com is a free web service aimed to help people to include mathematical formulas&graphics into the web pages easily and without sacrificing flexibility and high quality of LaTeX system.

It is based on very simple idea. User feeds QuickLaTeX.com with the piece of LaTeX code. QuickLaTeX renders it to the image stored on the server and returns URL of that image. User inserts URL into web page in place where formula should be. Next time when visitor opens that web page in the browser formula is shown.

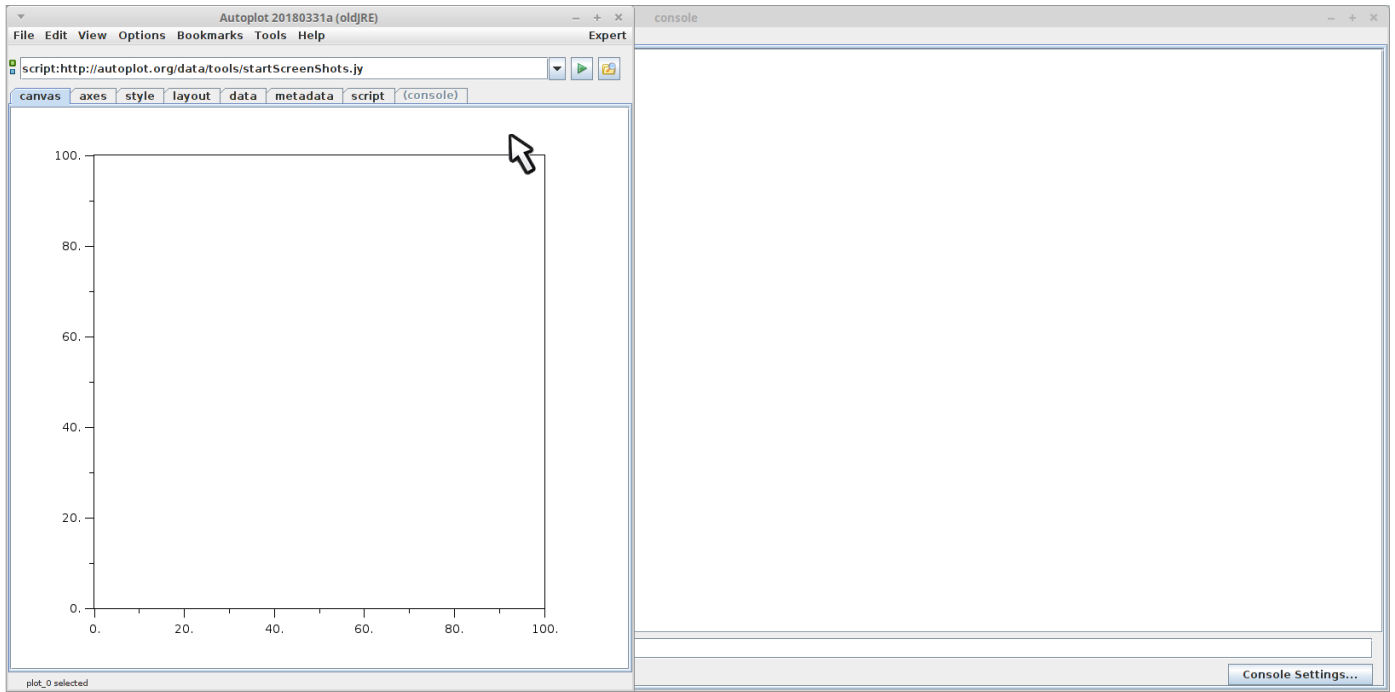
This process can be easily automated by means of QuickLaTeX-enabled plugins for your favorite CMS (Wordpress, Drupal, etc.). We have [WP-QuickLaTeX plugin](#) for Wordpress. Please visit math-pages on my [blog](#) to check its capabilities.

We welcome any contribution - especially in plugin development for various CMS (blogs, forums, etc).

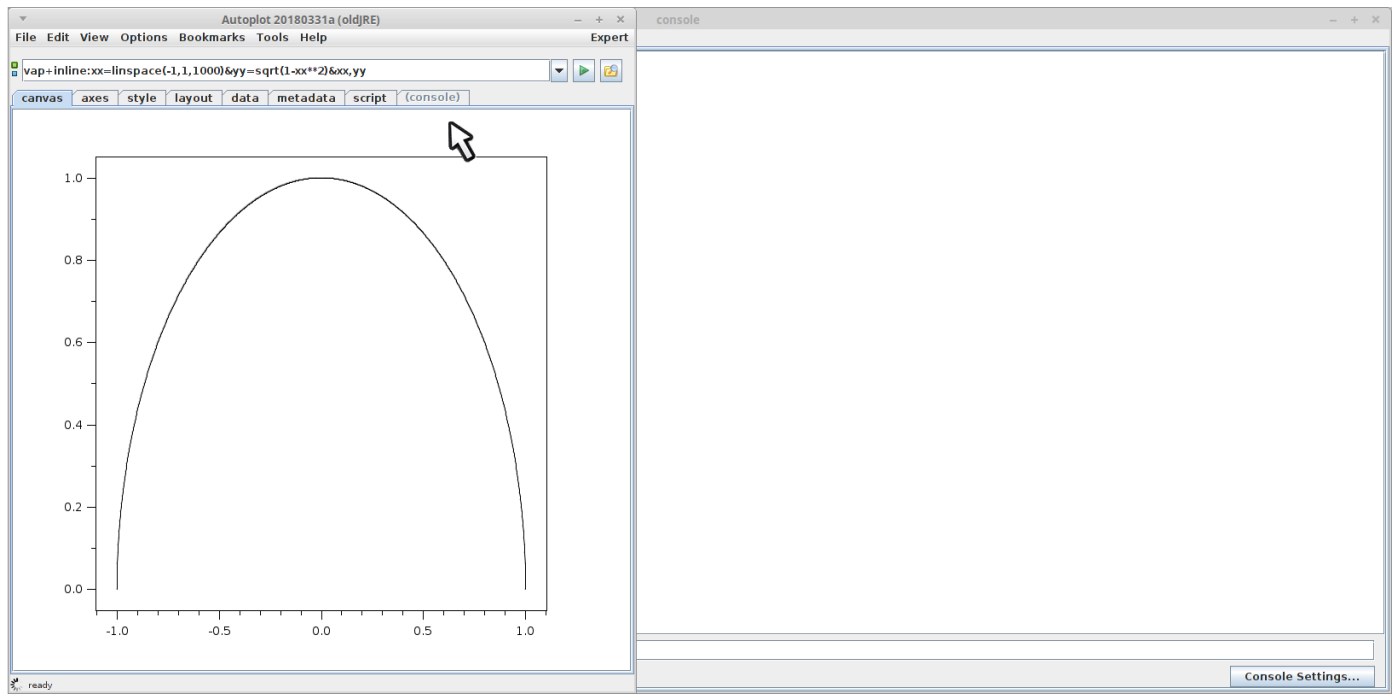
Type LaTeX Code:

```
\begin{align*}x^2 + y^2 &= 1 \\ y &= \sqrt{1 - x^2}\end{align*}
```

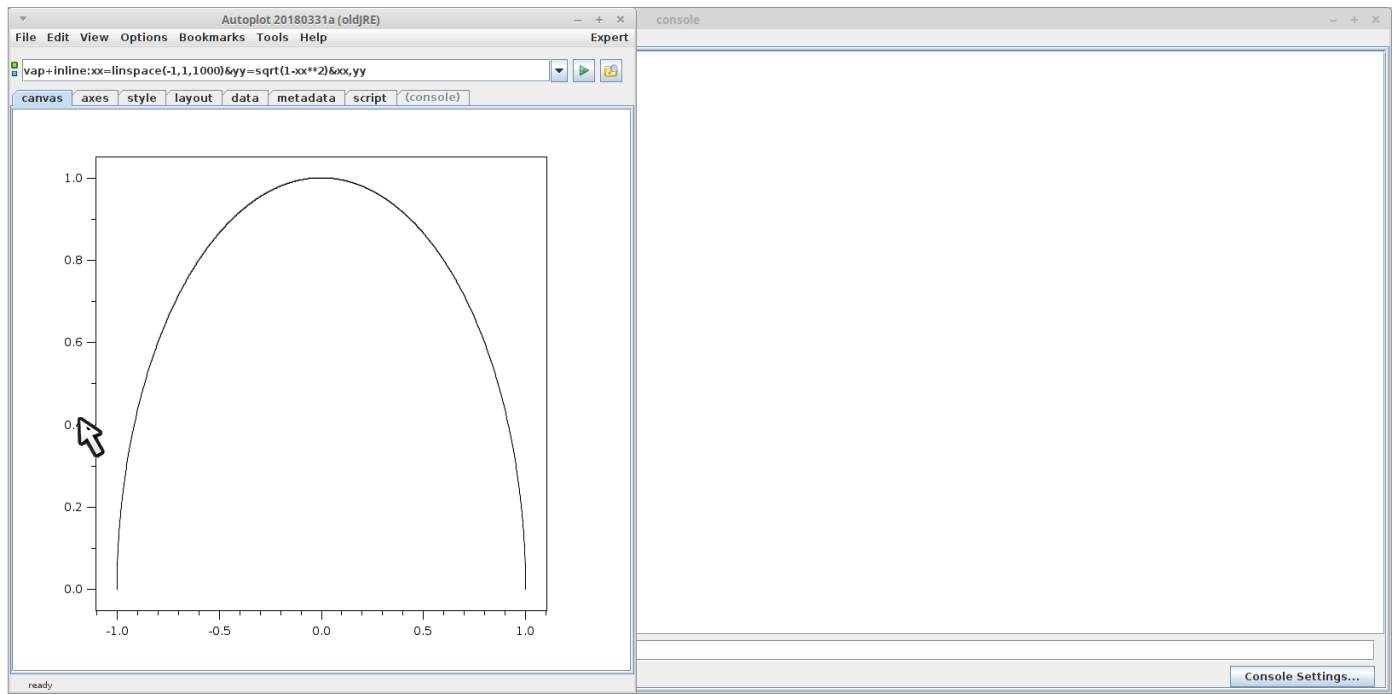
2. First plot an equation, using the URI `vap+inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`



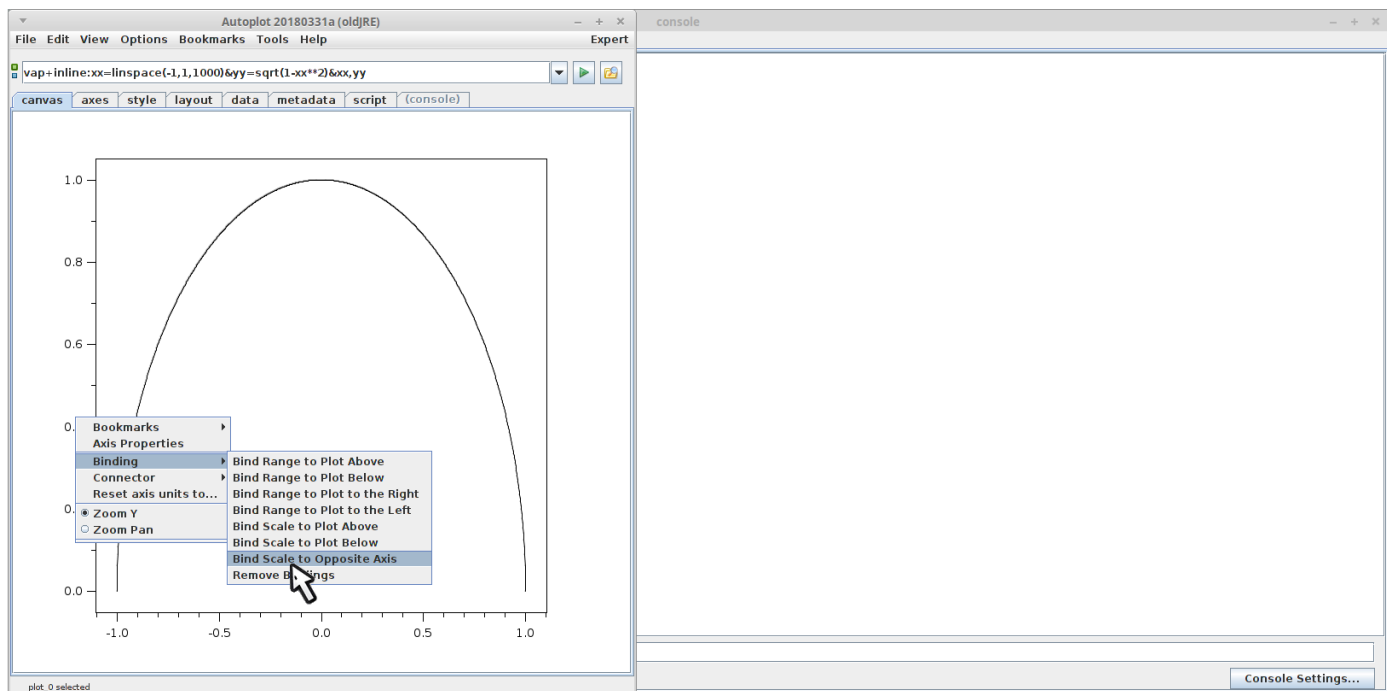
3. This "inline" URI is Jython code which represents a semicircle.



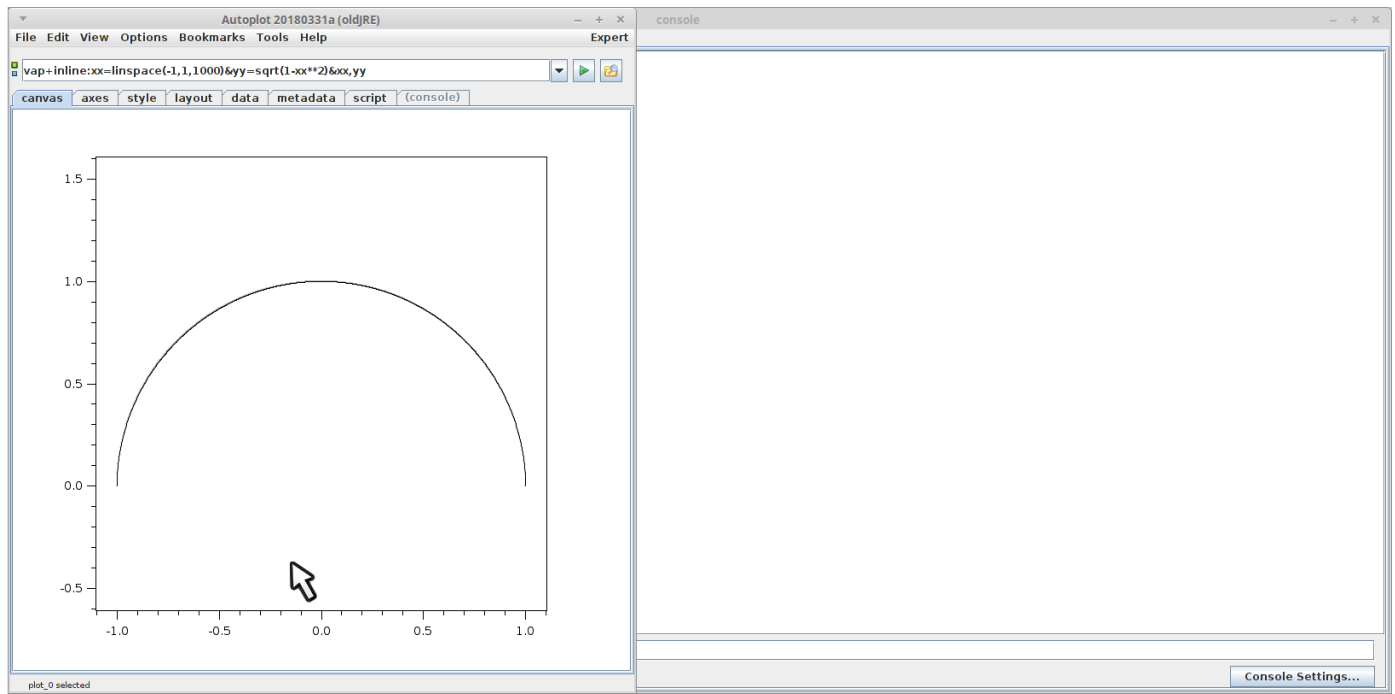
4. Right-click (control click) on the y-axis to bring up a menu...



5. and bind the scale to the x-axis.



6. Now we'll add an annotation.



## 7. Right-click (command-click) to "Add annotation..."

The screenshot displays the Autoplot 20180331a (oldJRE) interface. The main window shows a plot of a curve defined by the equation  $y = \sqrt{1-x^2}$  for  $x$  in the range  $[-1, 1]$ . The plot area has a coordinate system with x-axis from -1.0 to 1.0 and y-axis from -0.5 to 1.5. A context menu is open over the plot, listing various options. The "Add Annotation..." option is highlighted, and a mouse cursor is pointing at it. The context menu includes the following items:

- Plot Properties
- Plot Element Properties
- Plot Element Style Properties
- Plot Style
- Add Plot
- Edit Plot
- Edit Plot Element
- Edit Data Source
- Reset Zoom
- Add Annotation...
- Zoom X
- Zoom Y
- Crosshair Digitizer
- Zoom Pan
- Box Zoom
- Length
- Display Data
- Slope

The interface also shows a "console" window on the right, which is currently empty. At the bottom of the main window, there is a "Console Settings..." button. The status bar at the bottom left indicates "plot\_0 selected".

## 8. Set the text...

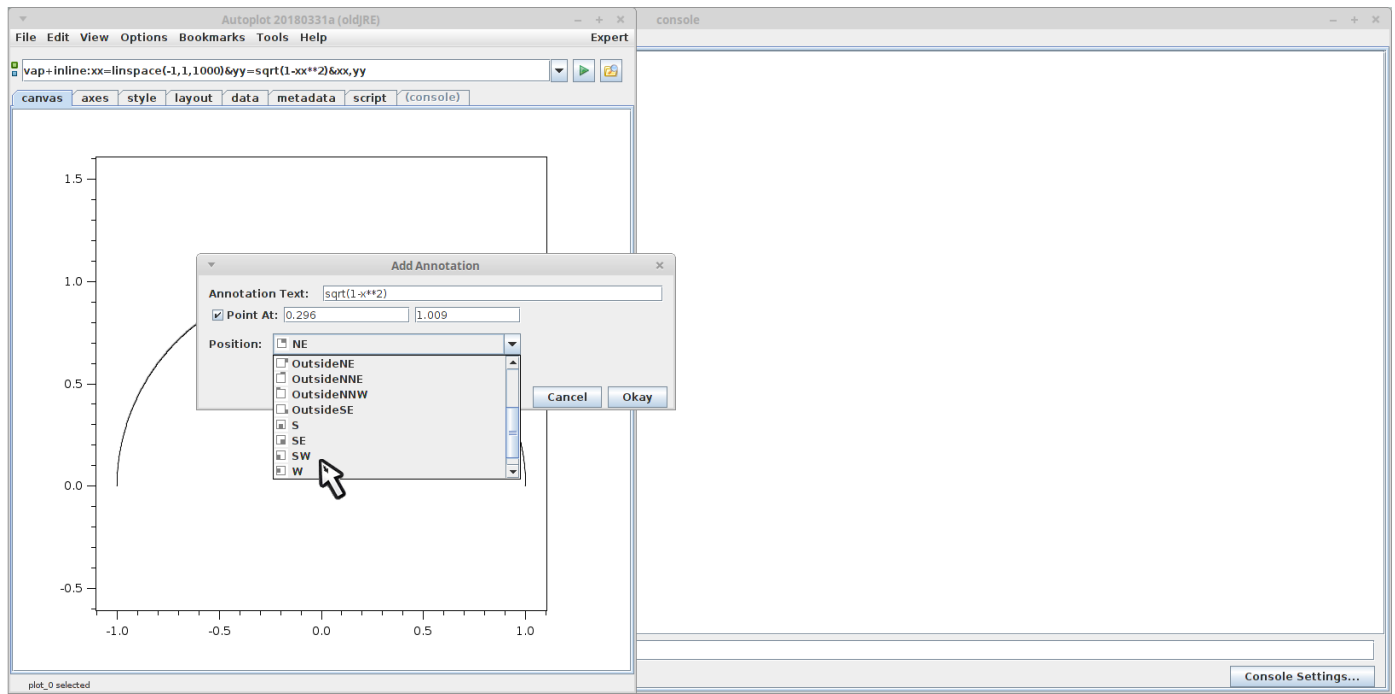
The screenshot displays the Autoplot 20180331a (old)RE software interface. The main window is titled "Autoplot 20180331a (old)RE" and features a menu bar with "File", "Edit", "View", "Options", "Bookmarks", "Tools", and "Help". Below the menu bar is a toolbar with icons for file operations and a command line containing the MATLAB code: `vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`. The main canvas shows a plot of a semi-circle with the x-axis ranging from -1.0 to 1.0 and the y-axis from -0.5 to 1.5. A dialog box titled "Add Annotation" is overlaid on the plot, with a mouse cursor pointing to the "Point At" field. The dialog box contains the following fields and options:

- Annotation Text:** `sqrt(1-xx**2)`
- Point At:** `0.296` (x) and `1.009` (y)
- Position:** `NE` (selected)

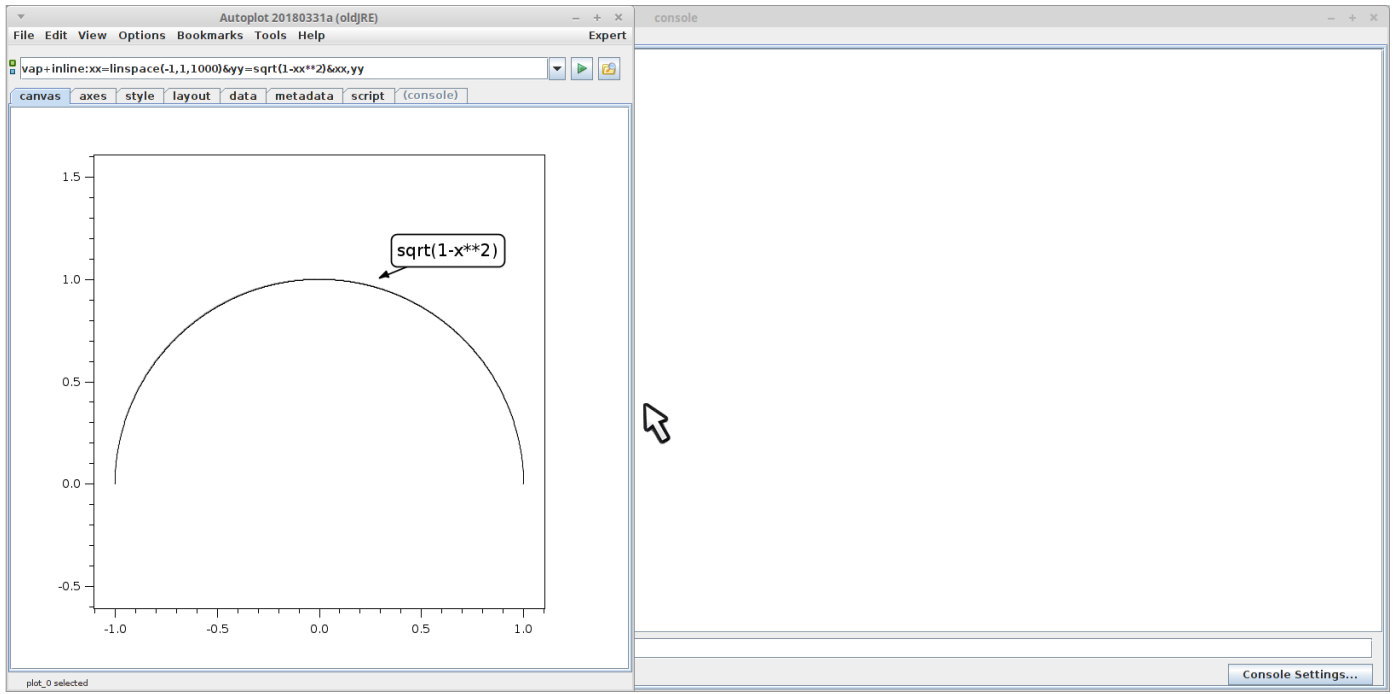
The dialog box also includes "Cancel" and "Okay" buttons. The status bar at the bottom left of the plot area indicates "plot\_0 selected". The right side of the interface shows a "console" window, which is currently empty. A "Console Settings..." button is visible at the bottom right of the console area.



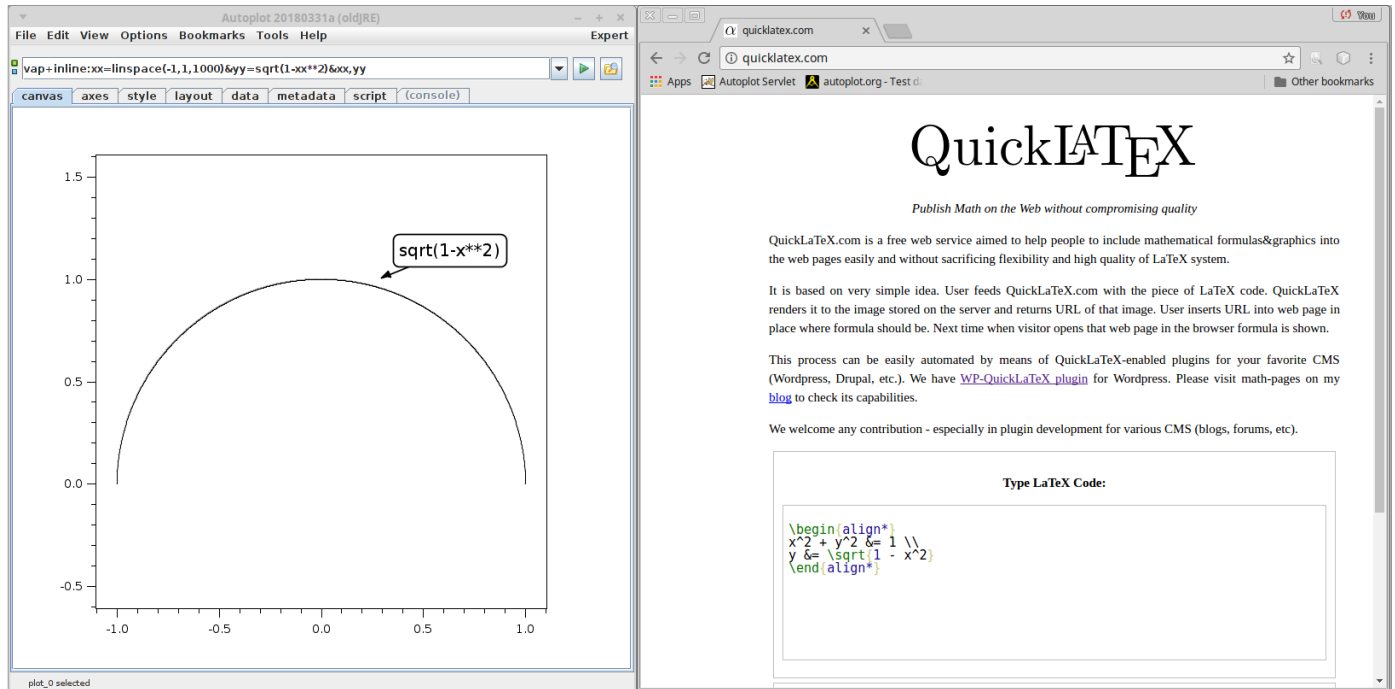
9. Select point at (which contains the original right-click location), and SW for the position.



10. This is an annotation showing Jython code. An annotation has many controls which can be set in its property editor.



1.1. We wish to show how the website quicklatex.com can be used to render LaTeX expressions in annotations.



The image shows two side-by-side windows. The left window is Autoplot 20180331a (old)RE, displaying a plot of a semi-circle. The plot has x-axis labels from -1.0 to 1.0 and y-axis labels from -0.5 to 1.5. A callout box points to the top of the curve with the text  $\sqrt{1-x^2}$ . The right window is a browser showing the QuickLaTeX.com website. The website title is "QuickL<sup>A</sup>T<sub>E</sub>X" and the tagline is "Publish Math on the Web without compromising quality". The text on the page describes the service and provides a code block for rendering the semi-circle.

Autoplot 20180331a (old)RE

File Edit View Options Bookmarks Tools Help

vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx\*\*2)&xx,yy

canvas axes style layout data metadata script (console)

plot\_0 selected

quicklatex.com

# QuickL<sup>A</sup>T<sub>E</sub>X

*Publish Math on the Web without compromising quality*

QuickLaTeX.com is a free web service aimed to help people to include mathematical formulas&graphics into the web pages easily and without sacrificing flexibility and high quality of LaTeX system.

It is based on very simple idea. User feeds QuickLaTeX.com with the piece of LaTeX code. QuickLaTeX renders it to the image stored on the server and returns URL of that image. User inserts URL into web page in place where formula should be. Next time when visitor opens that web page in the browser formula is shown.

This process can be easily automated by means of QuickLaTeX-enabled plugins for your favorite CMS (Wordpress, Drupal, etc.). We have [WP-QuickLaTeX plugin](#) for Wordpress. Please visit math-pages on my [blog](#) to check its capabilities.

We welcome any contribution - especially in plugin development for various CMS (blogs, forums, etc).

**Type LaTeX Code:**

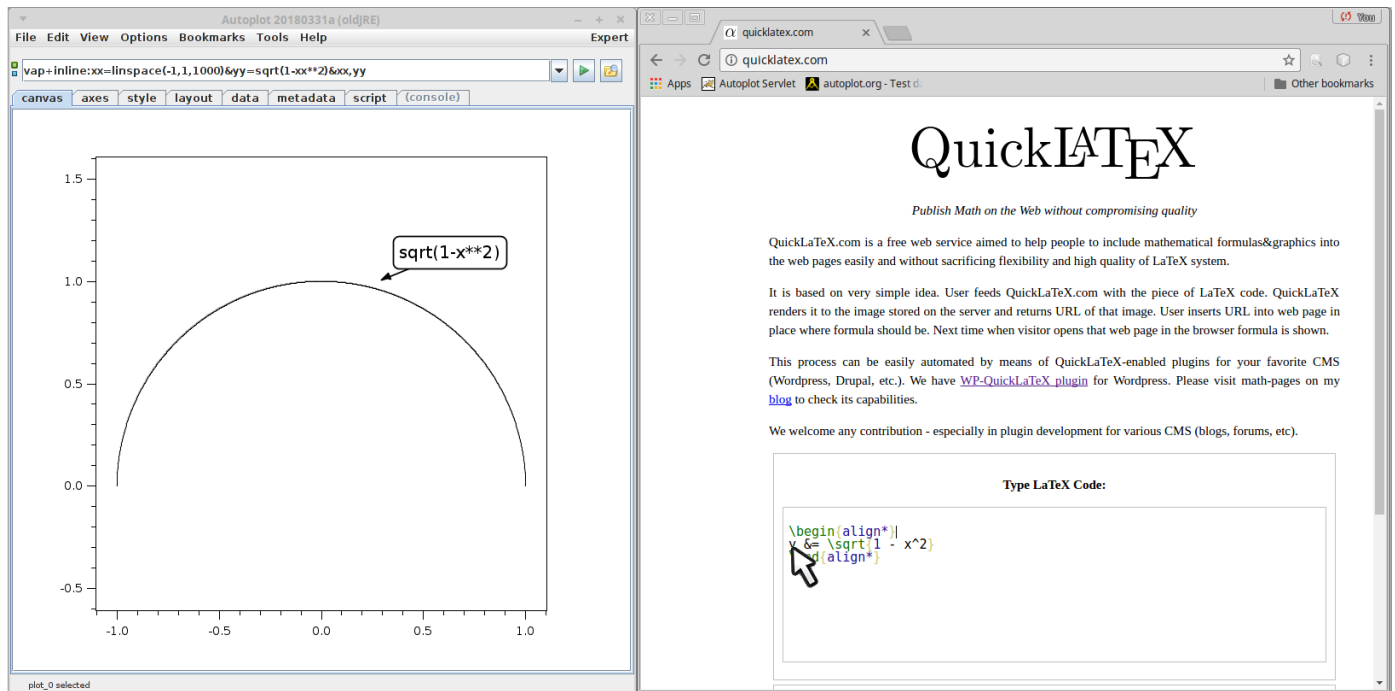
```
\begin{align*}x^2 + y^2 &= 1 \\ y &= \sqrt{1 - x^2} \\ \end{align*}
```

12. Modify the LaTeX code to the expression desired.

The image shows two side-by-side windows. The left window is the Autoplot application, displaying a plot of a semi-circle. The plot has x and y axes ranging from -1.0 to 1.0. A callout box points to the curve with the text  $\sqrt{1-x^2}$ . The command bar at the top of the Autoplot window contains the LaTeX code: `\vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`. The right window is a web browser showing the QuickLaTeX website. The page title is "QuickL<sup>A</sup>T<sub>E</sub>X" and the subtitle is "Publish Math on the Web without compromising quality". The main content describes the service and includes a section titled "Type LaTeX Code:" with a text area containing the following LaTeX code: 

```
\begin{align*}x^2 + y^2 &= 1 \\ y &= \sqrt{1 - x^2}\end{align*}
```

13. We want to show just the one-line expression.



The image shows two side-by-side windows. The left window is the Autoplot application, displaying a plot of the function  $y = \sqrt{1-x^2}$ . The plot is a semi-circle on a coordinate system with x-axis from -1.0 to 1.0 and y-axis from -0.5 to 1.5. A callout box points to the curve with the text  $\sqrt{1-x^2}$ . The command bar at the top of the Autoplot window contains the code: `vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`. The right window is a web browser showing the QuickLaTeX.com website. The page title is "QuickL<sup>A</sup>T<sub>E</sub>X" and the subtitle is "Publish Math on the Web without compromising quality". The main text describes the service as a free web service for including mathematical formulas and graphics. It explains the workflow: a user provides LaTeX code, QuickLaTeX.com renders it to an image, and the user inserts the image URL into a web page. The page also mentions that the process can be automated using plugins for various CMS systems like WordPress and Drupal. At the bottom of the page, there is a section titled "Type LaTeX Code:" with a text area containing the LaTeX code: 

```
\begin{align*}y &= \sqrt{1-x^2} \\ \end{align*}
```

 A mouse cursor is pointing at the code.

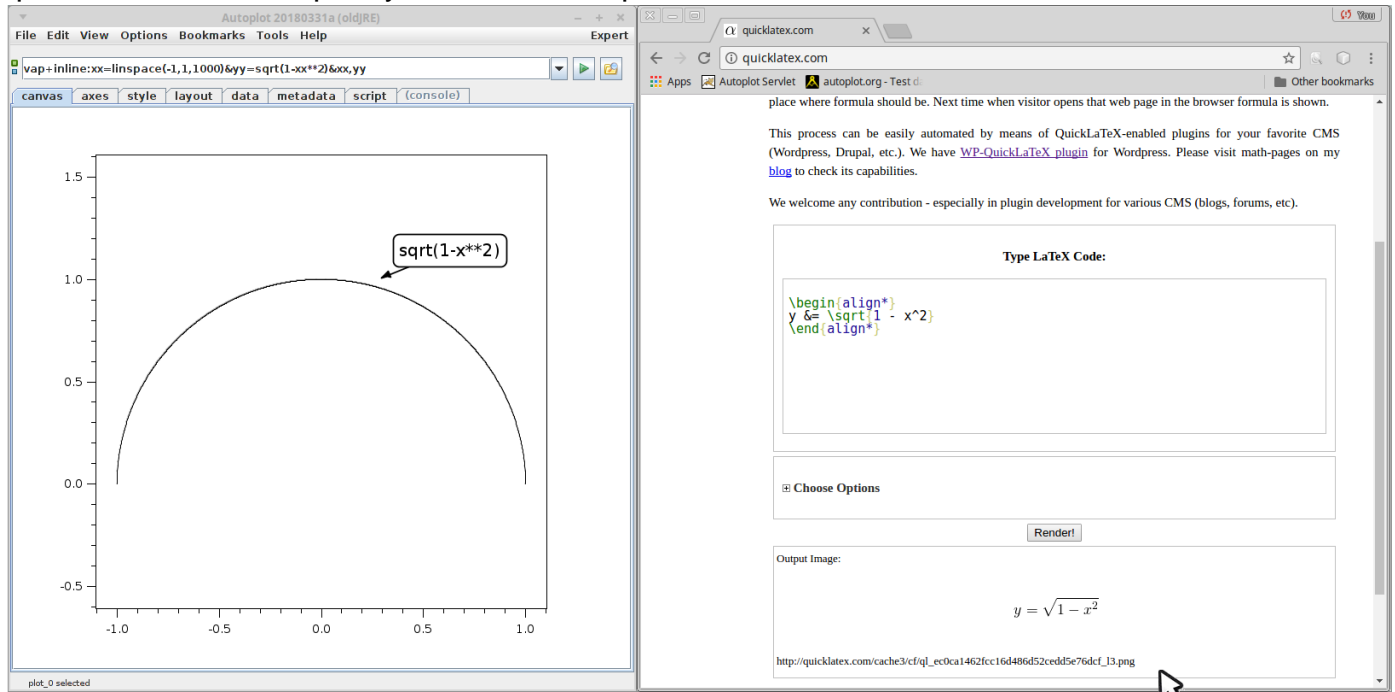
14. Scroll down, click "Render" (things may have changed since this was recorded in April 2018), and the LaTeX is rendered below.

The image shows two side-by-side windows. The left window is the Autoplot application, displaying a plot of the function  $y = \sqrt{1-x^2}$ . The plot is a semi-circle on a coordinate system with x-axis from -1.0 to 1.0 and y-axis from -0.5 to 1.5. A callout box points to the curve with the text  $\sqrt{1-x^2}$ . The right window is a web browser showing the QuickLaTeX website. It contains a text area with LaTeX code: 

```
\begin{align*}y &= \sqrt{1 - x^2} \\ \end{align*}
```

 Below the code is a "Render" button. The output image shows the rendered equation  $y = \sqrt{1 - x^2}$ . A mouse cursor is pointing at the rendered equation.

15. This image could be saved to your machine, but the site also provides a link. Note using this link introduces an external dependence, so the .vap may not load if the quicklatex.com is down.



The image shows two windows side-by-side. The left window is the Autoplot application, displaying a plot of the function  $y = \sqrt{1-x^2}$ . The plot is a semi-circle on a coordinate system with x-axis from -1.0 to 1.0 and y-axis from -0.5 to 1.5. A callout box points to the curve with the text  $\sqrt{1-x^2}$ . The right window is a web browser showing the quicklatex.com website. The page contains text about the service, a section for "Type LaTeX Code:" with a text area containing the LaTeX code 
$$\begin{aligned} y &= \sqrt{1-x^2} \end{aligned}$$
, a "Choose Options" section, a "Render!" button, and an "Output Image:" section showing the rendered equation 
$$y = \sqrt{1-x^2}$$
. At the bottom of the browser window, a URL is visible: [http://quicklatex.com/cache3/cf/ql\\_ec0ca1462fcc164486d52cedd5e76dcf\\_13.png](http://quicklatex.com/cache3/cf/ql_ec0ca1462fcc164486d52cedd5e76dcf_13.png).

16. Copy the link address of the image into the clipboard buffer.

The image shows two side-by-side windows. The left window is titled "Autoplot 20180331a (old)RE" and contains a plot of a semi-circle. The plot has x-axis labels from -1.0 to 1.0 and y-axis labels from -0.5 to 1.5. A callout box with an arrow points to the top of the curve, containing the text "sqrt(1-x\*\*2)". The right window is a web browser showing the "quicklatex.com" website. It features a "Type LaTeX Code:" section with a text area containing the LaTeX code: 

```
\begin{align*}y &= \sqrt{1 - x^2} \\ \end{align*}
```

. Below this is a "Choose Options" section and a "Render!" button. The "Output Image:" section displays the rendered equation  $y = \sqrt{1 - x^2}$ . At the bottom of the browser window, a URL is highlighted in orange, and a mouse cursor is hovering over it with the word "Copy" appearing below the cursor.



## 17. Edit the annotation's properties...

The image shows two side-by-side windows. The left window is the Autoplot application, titled "Autoplot 20180331a (old)RE". It has a menu bar with "File", "Edit", "View", "Options", "Bookmarks", "Tools", and "Help". Below the menu is a toolbar with icons for file operations and a command line containing the code: `vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`. Below the command line are tabs for "canvas", "axes", "style", "layout", "data", "metadata", "script", and "(console)". The main area shows a plot of a semi-circle  $y = \sqrt{1-x^2}$  from  $x = -1$  to  $x = 1$ . An annotation  $\sqrt{1-x^2}$  is placed above the curve. A context menu is open over the annotation, with options: "Annotation Properties" (selected), "Anchor to Data", "Delete Annotation", "Move Annotation", and "Point At". The status bar at the bottom says "plot\_0 selected".

The right window is a web browser showing the QuickLaTeX website. The address bar shows "quicklatex.com". The page content includes a paragraph about formula rendering, a section for "Type LaTeX Code:" with a text area containing the LaTeX code: 

```
\begin{align*}y &= \sqrt{1-x^2} \\ \end{align*}
```

, a "Choose Options" section, a "Render!" button, and an "Output Image:" section showing the rendered equation  $y = \sqrt{1-x^2}$ . The status bar at the bottom of the browser shows a cache path: `http://quicklatex.com/cache3/cf/qj_ee0ka1462fcc164486d52cedd5e76d-f_13.png`.

18. The property "url" should be the link location of an image. Note this overrides the text property, so the text property could be used to store the LaTeX code for future reference.

The image shows two windows side-by-side. The left window is the Autoplot application, titled "Autoplot 20180331a (old) [RE]". It has a menu bar (File, Edit, View, Options, Bookmarks, Tools, Help) and a toolbar. The main area shows a plot with axes and a property editor for "annotation\_0". The property editor is a table with columns "Property Name" and "Value". The "url" property is highlighted, and a mouse cursor is pointing at its value field. The right window is a web browser titled "quicklatex.com". It shows a page with text explaining the service and a "Render!" button. Below the button, the rendered LaTeX code is shown as 
$$y = \sqrt{1 - x^2}$$
. At the bottom of the browser window, a URL is visible: [http://quicklatex.com/cache3/cf/qf\\_ec0ca1462fcc164486d52cedd5e76d-f\\_13.png](http://quicklatex.com/cache3/cf/qf_ec0ca1462fcc164486d52cedd5e76d-f_13.png).

Property Name	Value
anchorType	PLOT
background	white
borderType	ROUNDED_RECTANGLE
columnid	marginColumn_0
controller	org.autoplot.dom.AnnotationController@782...
fontSize	1.4em
foreground	black
id	annotation_0
overrideColors	<input type="checkbox"/> false
plotid	plot_0
pointATX	0.296
pointATY	1.009
rowid	row_1
showArrow	<input checked="" type="checkbox"/> true
text	$\sqrt{1-x^2}$
textColor	black
url	
xrange	0.296 to 0.296
yrange	1.009 to 1.009

19. Paste the URL link location from the quicklatex.com website.

The image shows two side-by-side windows. The left window is the Autoplot 20180331a (old)RE application. The top menu bar includes File, Edit, View, Options, Bookmarks, Tools, and Help. The main toolbar has buttons for canvas, axes, style, layout, data, metadata, script, and (console). The main area displays a plot of the function  $y = \sqrt{1-x^2}$  on a coordinate system with x-axis from -1.0 to 1.0 and y-axis from -0.5 to 1.5. A 'Property Editor for annotation\_0' dialog box is open, showing a table of properties and values. A mouse cursor is pointing at the 'OK' button.

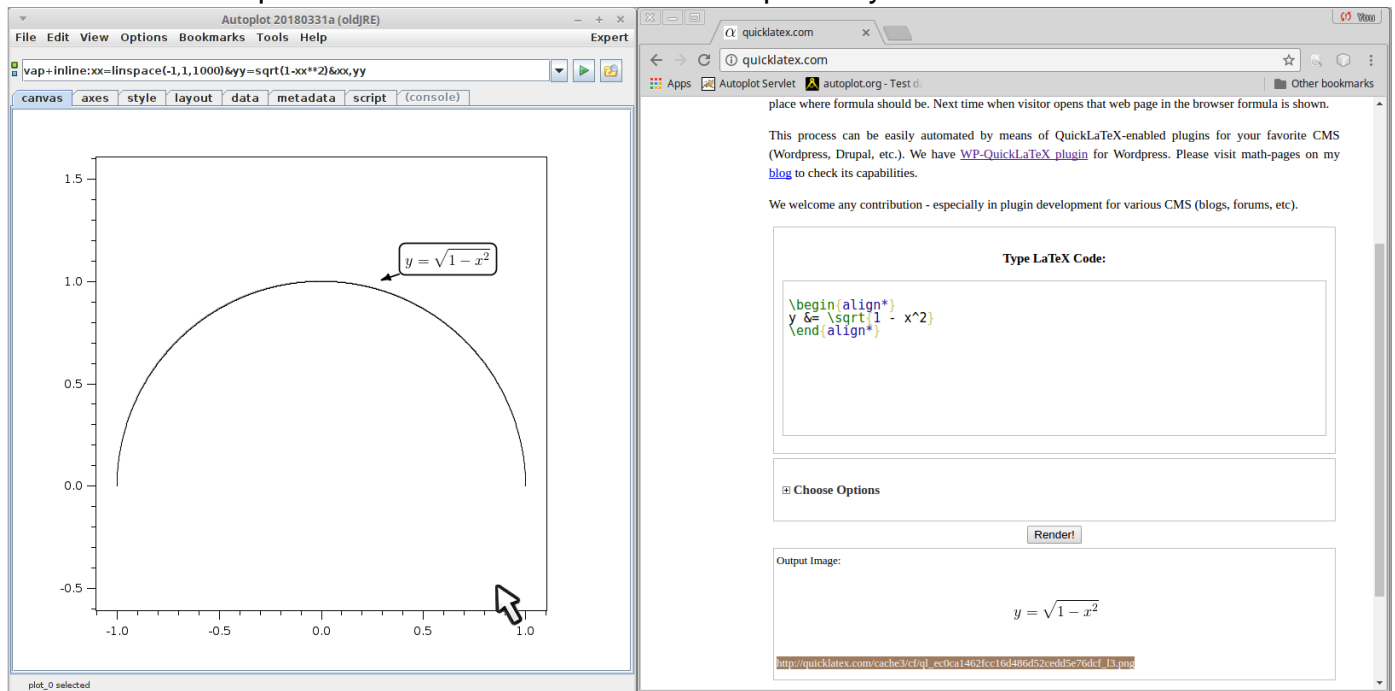
Property Name	Value
anchorType	PLOT
background	white
borderType	ROUNDED_RECTANGLE
columnId	marginColumn_0
controller	org.autoplot.dom.AnnotationController@782...
fontSize	1.4em
foreground	black
id	annotation_0
overrideColors	<input type="checkbox"/> false
plotId	plot_0
pointATX	0.296
pointATY	1.009
rowId	row_1
showArrow	<input checked="" type="checkbox"/> true
text	$\sqrt{1-x^2}$
textColor	black
url	http://quicklatex.com/cache3/cf/qj_ec0ca1462f...
xrange	0.296 to 0.296
yrange	1.009 to 1.009

The right window is a web browser showing the quicklatex.com website. The address bar shows 'quicklatex.com'. The page content includes a heading 'Type LaTeX Code:' followed by a text area containing the LaTeX code:

```
\begin{align*}y &= \sqrt{1-x^2} \\ \end{align*}
```

Below this is a 'Choose Options' section with a 'Render!' button. The 'Output Image:' section shows the rendered equation  $y = \sqrt{1-x^2}$ . At the bottom, a URL is displayed: [http://quicklatex.com/cache3/cf/qj\\_ec0ca1462f164486d52cedd5e76d-f13.png](http://quicklatex.com/cache3/cf/qj_ec0ca1462f164486d52cedd5e76d-f13.png)

20. The LaTeX image is painted on to the canvas in the annotation. Note this is only rendered at screen resolution, so it may not be suitable for publication. A future version of Autoplot may address this.



The image shows two windows side-by-side. The left window is the Autoplot application, titled 'Autoplot 20180331a (old)RE'. It has a menu bar with 'File', 'Edit', 'View', 'Options', 'Bookmarks', 'Tools', and 'Help'. Below the menu is a toolbar with icons for file operations and a 'Run' button. A command line contains the LaTeX code: `\vap->inline:xx=linspace(-1,1,1000)&yy=sqrt(1-xx**2)&xx,yy`. Below the command line is a toolbar with tabs for 'canvas', 'axes', 'style', 'layout', 'data', 'metadata', 'script', and '(console)'. The main area is a canvas showing a plot of the upper semicircle  $y = \sqrt{1-x^2}$ . The x-axis ranges from -1.0 to 1.0, and the y-axis ranges from -0.5 to 1.5. A mouse cursor is pointing at the bottom right of the plot. A small box with the equation  $y = \sqrt{1-x^2}$  and an arrow points to the curve. The status bar at the bottom says 'plot\_0 selected'.

The right window is a web browser showing the quicklatex.com website. The address bar shows 'quicklatex.com'. The page content includes a paragraph: 'place where formula should be. Next time when visitor opens that web page in the browser formula is shown.' Below this is another paragraph: 'This process can be easily automated by means of QuickLaTeX-enabled plugins for your favorite CMS (Wordpress, Drupal, etc.). We have [WP-QuickLaTeX plugin](#) for Wordpress. Please visit math-pages on my [blog](#) to check its capabilities.' A third paragraph says: 'We welcome any contribution - especially in plugin development for various CMS (blogs, forums, etc).' Below the text is a section titled 'Type LaTeX Code:' with a text area containing the LaTeX code: `\begin{align*} y &= \sqrt{1-x^2} \\ \end{align*}`. Below the text area is a 'Choose Options' section and a 'Render!' button. Below the button is an 'Output Image:' section showing the rendered equation  $y = \sqrt{1-x^2}$ . At the bottom of the page, there is a URL: [http://quicklatex.com/cache3/cf/qf\\_ec0ca1462fcc164486d52cedd5e76d-f\\_13.png](http://quicklatex.com/cache3/cf/qf_ec0ca1462fcc164486d52cedd5e76d-f_13.png).