

Soit z un nombre tel que : $0.0000001 < z < e^{(1/e)} = 1.44466786$

$\Rightarrow 1/z > e^{(-1/e)}$ Calculer le nombre c tel que : $z^c = c$

$$y(x) = e^{W(\ln(x))} = \ln(x)/W(\ln(x))$$

$$W(x) = x/y(e^x) = \ln(y(e^x))$$

$$\text{Soit } a = 1/x \Leftrightarrow x = 1/a$$

$$y(x) = y(1/a) = e^{W(\ln(1/a))} = e^{W(-\ln(a))}$$

$$y(x) = y(1/a) = \ln(1/a)/W(\ln(1/a)) = -\ln(a)/W(-\ln(a))$$

$$z^c = c$$

$$z = c^{(1/c)}$$

$$z^{(-1)} = c^{(-1/c)}$$

$$1/z = (1/c)^{(1/c)}$$

$$-\ln(z) = (1/c) \cdot \ln(1/c)$$

$$-\ln(z) = e^{(\ln(1/c))} \cdot \ln(1/c)$$

$$\ln(1/c) = W(-\ln(z))$$

$$1/c = e^{W(-\ln(z))}$$

$$1/c = -\ln(z)/W(-\ln(z))$$

$$c = W(-\ln(z))/(-\ln(z))$$

$$c = (-\ln(z))/y(e^{(-\ln(z))})/(-\ln(z))$$

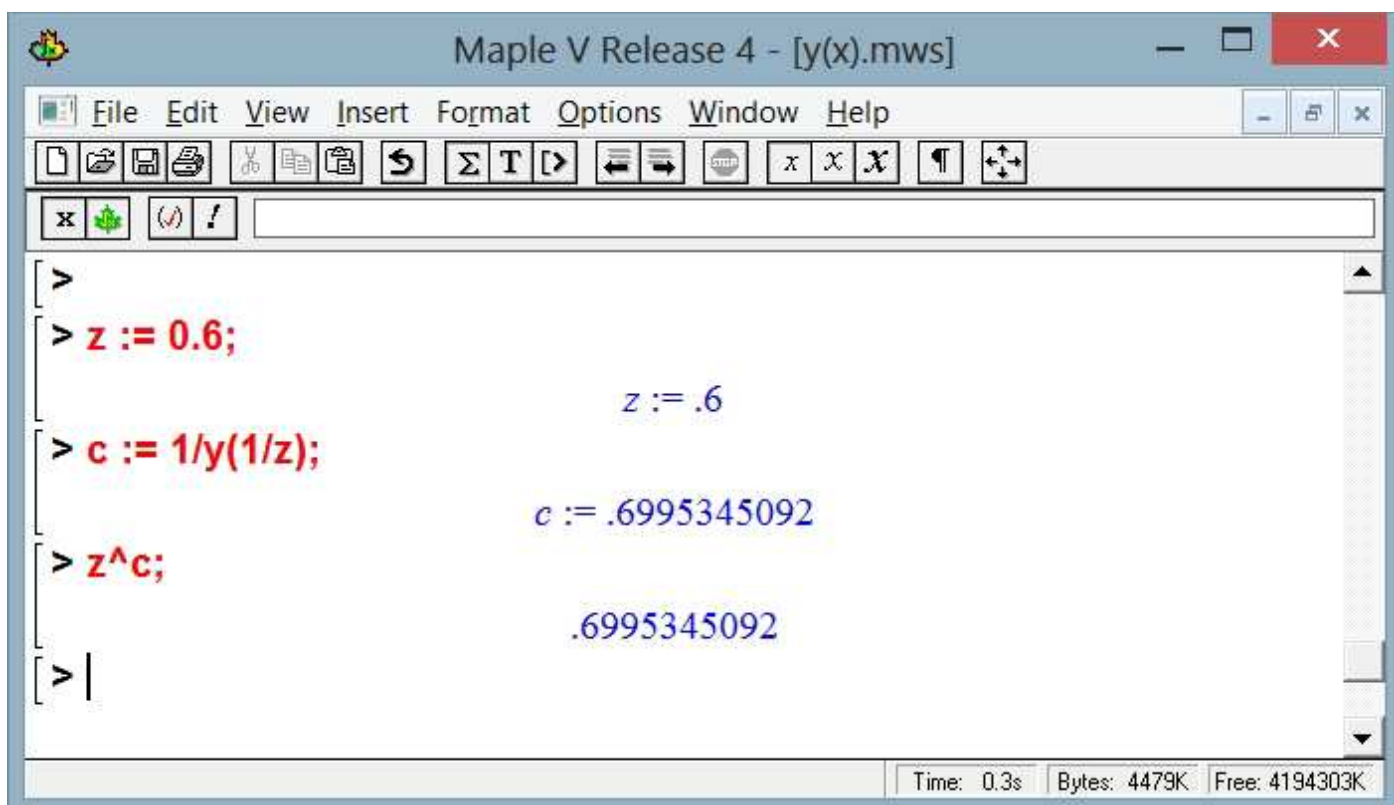
$$c = 1/y(e^{(-\ln(z))})$$

$$c = 1/y(1/z)$$

Pour chaque valeur z : $c = 1/y(1/z)$ est tel que : $z^c = c$

Si $1 < z < e^{(1/e)}$ il y a une seconde solution : $c_0 = 1/y_0(1/z)$

Exemple pour $z = \sqrt{2}$ on obtient : $c = 2$ et $c_0 = 4$



The screenshot shows the Maple V Release 4 interface. The title bar reads "Maple V Release 4 - [y(x).mws]". The menu bar includes File, Edit, View, Insert, Format, Options, Window, and Help. Below the menu is a toolbar with various icons for file operations, editing, and mathematical functions. The main window is a command editor with a prompt ">". The following commands and their outputs are shown:

```
>
> z := 0.6;
                                     z := .6
> c := 1/y(1/z);
                                     c := .6995345092
> z^c;
                                     .6995345092
> |
```

The status bar at the bottom indicates "Time: 0.3s", "Bytes: 4479K", and "Free: 4194303K".