LearnLatex(1)

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```
In [2]: var('z')
```

```
Out[2]: z
```

```
In [3]: latex(z^12)
```

```
Out[3]: z^{12}
```

```
In [4]: maxima('load("/home/fraser/projects/Math/maxima/cmt_struct_sage_test_102.mac")')
```

```
Out[4]: "/home/fraser/projects/Math/maxima/cmt_struct_sage_test_102.mac"
```

```
In [5]: fpv=maxima("finfo_Pv_z@latex")
        fps=maxima.eval("finfo_Pv_z@latex")
```

Getting Latex In Maxima Object Vs Latex In String Extra Step For Maxima Objects Required

Have To Convert Maxima Object To String For Consistent Results

```
In [6]: fpv
```

```
Out[6]: "P_\\nu(z)~=~\\left|\\omega_\\nu\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a_{-
```

```
In [7]: type(fpv)
```

```
Out[7]: <class 'sage.interfaces.maxima.MaximaElement'>
```

```
In [8]: fpv_str = fpv.str()
        fpv_str
```

```
Out[8]: '"P_\\\\nu(z)~=~\\\\left|\\\\omega_\\\\nu\\\\right|~\\\\sum_{-\\\\infty}^{\\\\infty}~p_
```

```
In [9]: fpv_str_rep = fpv_str.replace("\\\\","\\").replace('\"','')
        fpv_str_rep
```

```
Out[9]: 'P_\\nu(z)~=~\\left|\\omega_\\nu\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a_{-
```

```
In [10]: LatexExpr(fpv_str_rep)
```

```
Out[10]: P_\nu(z)~=~\left|\omega_\nu\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\r
```

```
In [11]: show(LatexExpr(fpv_str_rep))
```

$$P_\nu(z)~=~\left|\omega_\nu\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\right|^2$$

What Can Happen When Using Maxima Object Directly

```
In [12]: show(LatexExpr(fpv))
```

```
P_\nu(z)~=~\left| \omega_\nu \right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\
\nu}~(z)\right|^2
```

Using String From maxima.eval()

```
In [13]: fps
```

```
Out[13]: '"P_\\\\nu(z)~=~\\\\left|\\\\omega_\\\\nu\\\\right|~\\\\sum_{-\\\\infty}^{\\\\infty}~p
```

```
In [14]: type(fps)
```

```
Out[14]: <class 'str'>
```

```
In [15]: fps_rep=fps.replace("\\\\","\\").replace('\"','')
         fps_rep
```

```
Out[15]: 'P_\\nu(z)~=~\\left|\\omega_\\nu\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a_{
```

```
In [16]: LatexExpr(fps_rep)
```

```
Out[16]: P_\nu(z)~=~\left|\omega_\nu\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\
```

```
In [17]: show(LatexExpr(fps_rep))
```

```
P_\nu(z)~=~\left|\omega_\nu\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\right|^2
```

Getting Latex Display For Maxima Functions

```
In [18]: fdv=maxima("finfo_Pdz_z@latex")
         fds=maxima.eval("finfo_Pdz_z@latex")
```

```
In [19]: fdv
```

```
Out[19]: "P_{dz}(z)~=~\\left|~\\omega_\\nu~\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a
```

```
In [20]: fds
```

```
Out[20]: '"P_{dz}(z)~=~\\\\left|~\\\\omega_\\\\nu~\\\\right|~\\\\sum_{-\\\\infty}^{\\\\infty}~p
```

```
In [21]: LatexExpr(fdv)
```

```
Out[21]: P_{dz}(z)~= ~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_\
         {-\nu}~(z)\right|^2
```

```
In [22]: fdv_str=fdv.str()
         fdv_str
```

```
Out[22]: '"P_{dz}(z)~=~\\\\left|~\\\\omega_\\\\nu~\\\\right|~\\\\sum_{-\\\\infty}^{\\\\infty}~p
```

```
In [23]: fdv_str_rep =fdv_str.replace("\\\\","\\").replace('\"','')
         fdv_str_rep
```

```
Out[23]: 'P_{dz}(z)~=~\\left|~\\omega_\\nu~\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a
```

```
In [24]: LatexExpr(fdv_str_rep)
```

```
Out[24]: P_{dz}(z)~=~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(
```

```
In [25]: show(LatexExpr(fdv_str_rep))
```

```
P_{dz}(z)~=~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\right|
```

Using String From maxima.eval()

```
In [26]: fds
```

```
Out[26]: '"P_{dz}(z)~=~\\\\left|~\\\\omega_\\\\nu~\\\\right|~\\\\sum_{-\\\\infty}^{\\\\infty}~p
```

```
In [27]: LatexExpr(fds)
```

```
Out[27]: "P_{dz}(z)~=~\\left|~\\omega_\\nu~\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a
```

```
In [28]: show(LatexExpr(fds))
```

```
"P_{dz}(z)~=~\\left|~\\omega_\\nu~\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a_{-\\nu}~
```

```
In [29]: fds_rep=fds.replace("\\\\","\\").replace('\"','')
         fds_rep
```

```
Out[29]: 'P_{dz}(z)~=~\\left|~\\omega_\\nu~\\right|~\\sum_{-\\infty}^{\\infty}~p_{m}~\\left|~a
```

```
In [30]: LatexExpr(fds_rep)
```

```
Out[30]: P_{dz}(z)~=~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(
```

```
In [31]: show(LatexExpr(fds_rep))
```

```
P_{dz}(z)~=~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~(z)\right|
```

```
In [32]: LatexExpr(fds.replace("\\\\","\\"))
```

```
Out[32]: "P_{dz}(z)~=~\left|~\omega_\nu~\right|~\sum_{-\infty}^{\infty}~p_{m}~\left|~a_{-\nu}~
```

```
In [33]: show(LatexExpr(fds.replace("\\\\","\\").replace('\"','')))
```