Sympy a library for symbolic mathematics

In [12]:
```
from sympy import *
```

To start just a few handy calculus examples:

In [34]:
```
#first to declare variables

x, y, z = symbols('x y z')

# to get nicely formatted output make sure you include unicode
init_printing(use_unicode=True)
```

Differenciate:

In [35]:
```
diff(x**2+x, x)
```

Out[35]: $2x + 1$

Integrate:

In [36]:
```
integrate(log(1/x))
```

Out[36]: $-x \log\left(x\right) + x$

Symolic equation solving:

In [21]:
```
expression=x**2+x+1
```

In [22]:
```
expression
```

Out[22]: $x^2 + x + 1$

In [23]:
```
expression-x
```

Out[23]: $x^2 + 1$

In [24]:
```
sqrt(expression)
```

Out[24]: $\sqrt{x^2 + x + 1}$

In [25]:
```
expression**2
```

Out[25]: $\left(x^2 + x + 1\right)^2$

In [31]:
```
a=solve(expression,x)
a                       # this line will just make Out[]
```

Out[31]:

$$\left[-\frac{1}{2} - \frac{1}{2}\sqrt{3}i, \quad -\frac{1}{2} + \frac{1}{2}\sqrt{3}i \right]$$

In [29]:
```
latex(expression)  #for simple latex code, ready to copy to your .tex file
```

Out[29]:
```
x^{2} + x + 1
```

In [30]:
```
latex(a)
```

Out[30]:
```
\begin{bmatrix}- \frac{1}{2} - \frac{1}{2} \sqrt{3} \mathbf{\imath}, & - \frac
{1}{2} + \frac{1}{2} \sqrt{3} \mathbf{\imath}\end{bmatrix}
```

...und so weiter , for more look here

http://docs.sympy.org/latest/tutorial/index.html

In [ ]: