

In [1]:

```
f(x)=x*(x+1)^95
show(f)
```

Out[1]:

$$x \mapsto (x + 1)^{95} x$$

In [2]:

```
show(integrate(f(x),x,0,1))
```

Out[2]:

$$\frac{2508891812951704023795558427307}{3104}$$

In [3]:

```
# double check
# using binomial expansion of (1+x)^95
var('n')
assume(n, 'integer')
assume(n>0)
g(x,n)=x*binomial(95,n)*x^n
G(n)=integrate(g(x,n),x,0,1)
show(G)
```

Out[3]:

$$n \mapsto \frac{\binom{95}{n}}{n+2}$$

In [4]:

```
show(sum(G(n),n,0,95))
```

Out[4]:

$$\frac{2508891812951704023795558427307}{3104}$$

In [5]:

```
# double check again
var('n')
assume(n, 'integer')
show(sum(binomial(95,n)/(n+2),n,0,95))
```

Out[5]:

$$\frac{2508891812951704023795558427307}{3104}$$

In [0]: