Exemples d'utilisation de Giac

Jean-Michel Sarlat

30 mai 2008

La plupart des exemples qui apparaissent ici sont tirés du *tutorial* de **Xcas**.

1 Premiers calculs

```
→ 1/3+1/4;
```

$$\frac{7}{12}$$

```
→ sqrt(2)^5;
```

$$\sqrt{2}2^2$$

```
→ solve(a*x^2+b*x+c,x);
```

$$[\frac{(-b+\sqrt{-(4ac)+b^2})}{2a},\frac{(-b-\left(\sqrt{-(4ac)+b^2}\right))}{2a}]$$

```
→ 50!
```

30414093201713378043612608166064768844377641568960512000000000000

```
→ 2*a+b;
```

$$2a+b$$

```
→ a/2*b;
```

$$\frac{a}{2}\times b$$

```
→ a/2/b;
```

$$\frac{a}{2b}$$

```
→ a^2*b;
```

$$a^2b$$

```
→ sqrt(2);
```

$$\sqrt{2}$$

```
→ evalf(sqrt(2));
```

1.414214

```
→ sqrt(2)-evalf(sqrt(2));
```

0.000000

```
→ exact(evalf(sqrt(2)))*10^9;
```

$$\frac{57121500000000}{40391}$$

```
→ exact(evalf(sqrt(2)*10^9));
```

$$\frac{86487644620489}{61156}$$

```
→ evalf(sqrt(2),50);
```

$$1.4142135623730950488016887242096980785696718753769 5$$

```
→ evalf(pi,70);
```

$$3.1415926535897932384626433832795028841971693993751058209749445923078164$$

```
→ Digits:=50;
```

$$[0,0,0,1,0,0.000000,50,[1,50,0,25],0,0,0]$$

```
→ evalf(pi);
```

$$3.1415926535897932384626433832795028841971693993751 0$$

```
→ evalf(exp(pi*sqrt(163)));
```

$$0.26253741264076874399999999999992500725971981856887 19e18$$

```
→ (1+2*i)^2;
```

$$-3+4*i$$

```
→ (1+2*i)/(1-2*i);
```

$$\frac{-3+4*i}{5}$$

```
→ e^(i*pi/3);
```

$$(2)^{-1}+\frac{i\sqrt{3}}{2}$$

```
→ 1/0; (1/0)^2; -(1/0)^2;
```

$$\infty, +\infty, -\infty$$

2 Manipulation des chaînes de caractères

```
→ s:="azertyuiop";
```

azertyuiop

```
→ size(s);
```

$$10$$

```
→ s[0]+s[3]+s[size(s)-1];
```

arp

```
→ concat(s[0],concat(s[3],s[size(s)-1]));
```

arp

```
→ head(s);
```

a

```
→ tail(s);
```

zertyuiop

```
→ mid(s,3,2);
```

rt

```
→ l:=asc(s);
```

$$[97, 122, 101, 114, 116, 121, 117, 105, 111, 112]$$

```
→ ss:=char(l);
```

azertyuiop

```
→ string(123);
```

123

```
→ expr(123);
```

$$\mathrm{expr}(123)$$

```
→ expr(0123);
```

$$\mathrm{expr}(83)$$

3 Les variables

```
→ a==b;
```

$$0$$

```
→ a:=b;
```

$$b$$

```
→ a==b;
```

$$1$$

```
→ solve(a=b,a);
```

$$[b]$$

```
→ solve(2*a=b+1,a);
```

$$[1]$$

```
→ sqrt(a^2);
```

$$\mathrm{abs}(b)$$

```
→ assume(a<0);
```

$$a$$

```
→ sqrt(a^2);
```

$$-a$$

```
→ assume(n,integer);
```

$$DOM_INT$$

```
→ sin(n*pi);
```

$$0$$

```
→ subst(a^2+1,a=1);
```

$$2$$

```
→ subst(a^2+1,a=sqrt(b-1));
```

$$b$$

```
→ a^2+1;
```

$$a^2+1$$