

```

> y:=x->x^2;
                                y:=x→x2
=
> y(2);
                                4
=
> f:=(x,y)->x^3-3*x*y^2;
                                f:=(x,y)→x3-3xy2
=
> s:=x->if x<1 then -1 elif x=1 then 0 else 1 fi;
    s:=x→if x<1 then -1 elif x=1 then 0 else 1 end if
=
> s:=x->piecewise(x<1,-1,x=1,0,x>1,1);
    s:=x→piecewise(x<1,-1,x=1,0,1<x,1)
=
> vzorec:=(b^2*x^2*sin(b*x)-2*sin(b*x)+2*b*x*cos(b*x)*a*t)/b^3:
> F:=unapply(vzorec, x, t);
    F:=(x,t)→ $\frac{b^2 x^2 \sin(bx) - 2 \sin(bx) + 2bx \cos(bx) at}{b^3}$ 
=
> map(x->x^2, a+b+c);
                                a2+b2+c2
=
> eqn:=(x-1)*(x^2+x+1);
                                eqn:=(x-1)(x2+x+1)
=
> sol:=solve(eqn, x);
                                sol:=1, - $\frac{1}{2}$  +  $\frac{1}{2}$  I√3, - $\frac{1}{2}$  -  $\frac{1}{2}$  I√3
=
> eval(eqn, x=sol[1]);expand(eval(eqn, x=sol[2]));
                                0
                                0
=
> solve({x+2*y=3, y+1/x=1}, {x,y});
                                {x=-1, y=2}, {x=2, y= $\frac{1}{2}$ }
=
> solve(x^3+4*x^2+2*x-1>0, {x});
                                { $-\frac{3}{2} - \frac{1}{2}\sqrt{13} < x, x < -1$ }, { $-\frac{3}{2} + \frac{1}{2}\sqrt{13} < x$ }
=
> r:=x^7-2*x^6-4*x^5-x^3+x^2+6*x+4;
                                r:=x7-2x6-4x5-x3+x2+6x+4
=
> fsolve(r);
                                -1.236067977, 1.167303978, 3.236067977
=
> fsolve(r, x, complex):
> fsolve(r,x,0..2);
                                1.167303978
=
> fsolve(sin(x), x=3);
                                3.141592654

```

$$y(x) = x^2; y(x); y(2)$$

$$x^2$$

$$4$$

$$f(x, y) = x^3 - 3xy^2; f(x, y)$$

$$x^3 - 3xy^2$$

```
def s(x):
    if x < 1: return -1
    elif (x == 1): return 0
    else: return 1
```

```
s = piecewise([( (-infinity, 1), -1 ), [(1, 1), 0 ], [(1, infinity), 1] ], var=x)
```

$$vzorec = (b^2 x^2 \sin(bx) - 2 \sin(bx) + 2bx \cos(bx) * a * t) / b^3$$

$$(a, b, t)$$

$$F(x, t) = vzorec; F(x, t)$$

$$\frac{2 abt x \cos(bx) + b^2 x^2 \sin(bx) - 2 \sin(bx)}{b^3}$$

$$var('c'); f(x) = x^2; map(f, [a, b, c])$$

$$c$$

$$[a^2, b^2, c^2]$$

$$eqn = (x - 1) * (x^2 + x + 1); sol = solve(eqn, x); sol$$

$$[x = -\frac{1}{2}i\sqrt{3} - \frac{1}{2}, x = \frac{1}{2}i\sqrt{3} - \frac{1}{2}, x = 1]$$

$$eqn.subs(x=sol[0].rhs()).simplify\_full(); eqn.subs(x=sol[1].rhs()).simplify\_full\$$

$$();$$

$$0$$

$$0$$

$$solve([x + 2y == 3, y + 1/x == 1], x, y)$$

$$[[x = (-1), y = 2], [x = 2, y = \left(\frac{1}{2}\right)]]$$

$$r = x^7 - 2x^6 - 4x^5 - x^3 + x^2 + 6x + 4; r$$

$$x^7 - 2x^6 - 4x^5 - x^3 + x^2 + 6x + 4$$

```
solve(r, x, to_poly_solve='force')
```

$$[x = 1.1673040153, x = -\sqrt{5} + 1, x = \sqrt{5} + 1, x = (0.18123244447 - 1.08395410132i), x = (-0.764884433601 - 0.352471546031726i), x = (-0.764884433601 + 0.352471546031726i), x = (0.18123244447 + 1.08395410132i)]$$

```
r.roots(ring=RR)
```

$$[(-1.23606797749979, 1), (1.16730397826142, 1), (3.23606797749979, 1)]$$

```
r.roots(ring=CC)
```

$$[(-1.23606797749979, 1), (1.16730397826142, 1), (3.23606797749979, 1), (-0.764884433600585 - 0.352471546031726i, 1), (-0.764884433600585 + 0.352471546031726i, 1), (0.181232444469875 - 1.08395410131771i, 1), (0.181232444469875 + 1.08395410131771i, 1)]$$

```
find\_root(r, 0, 2)
```

$$1.16730397826$$

```
find\_root(sin(x), 2, 4)
```

$$3.14159265359$$