

Symbolic Math

In [1]: `from sympy import *`

In [4]: `# Solve a quadratic equation
a,b,c,x = symbols('a b c x')
eqn=a*x**2 + b*x + c #equals zero is implicit.
sol=solve(eqn, 'x')
print(sol)`

`[(-b + sqrt(-4*a*c + b**2))/(2*a), -(b + sqrt(-4*a*c + b**2))/(2*a)]`

In [14]: `#substitute variables
sol[0].subs({'a':3, 'b':5})`

Out[14]: `sqrt(-12*c + 25)/6 - 5/6`

In [17]: `#solve system of equations
x,y=symbols('x y')
sol = solve([x+y-1, x-y-1])
print(sol)`

`{x: 1, y: 0}`

In [18]: `expand((x+y)**2)`

Out[18]: `x**2 + 2*x*y + y**2`

In [19]: `factor(x**2 - y**2)`

Out[19]: `(x - y)*(x + y)`

In [20]: `diff(sin(x),x)`

Out[20]: `cos(x)`

In []:

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