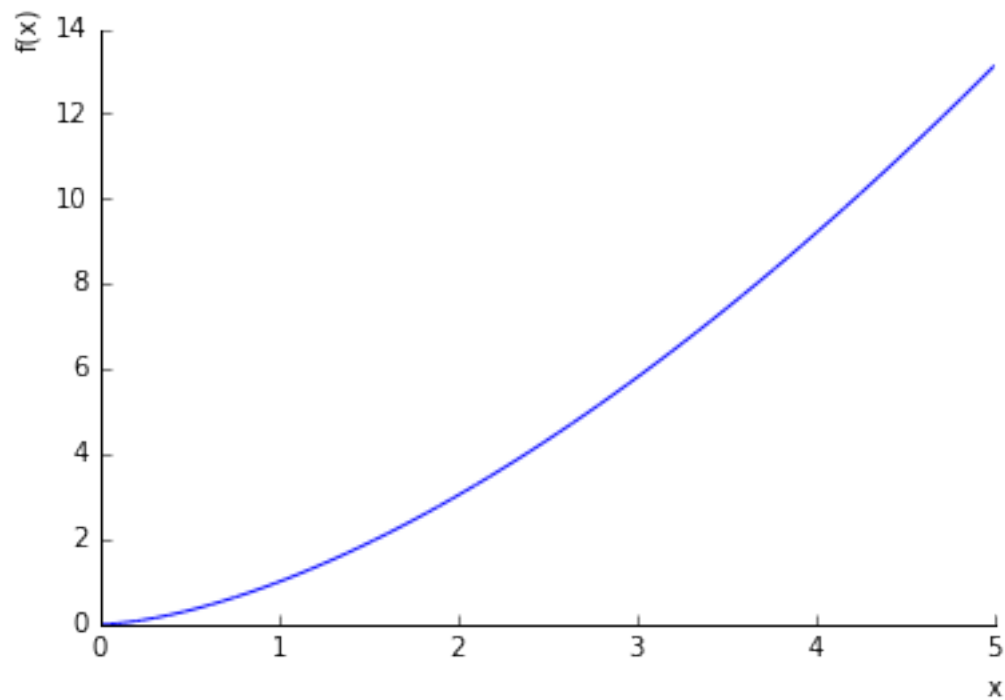# ClassHour05

September 1, 2017

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In [10]: 3*5
```

```
Out[10]: 15
```

```
In [2]: from sympy import *
```

```
In [3]: x,y,t = symbols('x y t')
```

```
In [6]: plot(x**1.6,(x,0,5))
```



```
Out[6]: <sympy.plotting.plot.Plot at 0x7fad8bff1e80>
```

```
In [11]: expr = x**2 + 2*x +1
```

```
In [16]: print(expr.subs(x,2.43).evalf(5))
```

11.765

```
In [17]: fcn=x**4-1

In [18]: print(solve(fcn,x))

[-1, 1, -I, I]


In [19]: print(solve(expr,x))

[-1]


In [20]: solve(expr,x)

Out[20]: [-1]

In [21]: limit(sin(x)/x,x,0)

Out[21]: 1

In [23]: diff(x**2,x)

Out[23]: 2*x

In [24]: a,b=symbols('a b')

In [25]: gcn = sin(a*x+b*t)

In [26]: pprint(gcn)

sin(ax + bt)


In [28]: print(latex(gcn))

\sin{\left (a x + b t \right )}


In [30]: diff(gcn,t)

Out[30]: b*cos(a*x + b*t)

In [31]: integrate(x**2,x)

Out[31]: x**3/3

In [32]: integrate(1/x,x)

Out[32]: log(x)
```

```
In [34]: integrate(erfc(x),(x,0,2)).evalf(5)

Out[34]: 0.56321

In [35]: integrate(exp(-x**2),(x,-oo,oo))

Out[35]: sqrt(pi)

In [36]: print(expr)

x**2 + 2*x + 1


In [37]: expr.series(x,2,4)

Out[37]: 6*x + (x - 2)**2 - 3

In [38]: exp(x).series(x,2,5)

Out[38]: exp(2) + (x - 2)*exp(2) + (x - 2)**2*exp(2)/2 + (x - 2)**3*exp(2)/6 + (x - 2)**4*exp(

In [39]: f=Function('f')

In [40]: diff = f(x).diff(x,x) + f(x)

In [41]: pprint(diff)

         2
        d
f(x) + (f(x))
         2
      dx


In [42]: pprint(dsolve(diff,f(x)))

f(x) = Csin(x) + Ccos(x)


In [ ]:
```