

In [1]:

```
show(maxima(cos(x^2)).powerseries(x,0)._sage_())
```

Out[1]:

$$\sum_{i_1=0}^{+\infty} \frac{(-1)^{i_1} x^{4 i_1}}{(2 i_1)!}$$

In [2]:

```
var('n')
f(n)=((-1)^n)/(factorial(2*n))
show(f)
```

Out[2]:

$$n \mapsto \frac{(-1)^n}{(2n)!}$$

In [3]:

```
show(sum(f(n)*x^(4*n),n,0,+Infinity))
```

Out[3]:

$$\cos(x^2)$$

In [4]:

```
var('t')
#n=0
show(integrate(x^(4*0),x,0,t))
```

Out[4]:

t

In [5]:

```
#n=1
show(integrate(x^(4*1),x,0,t))
```

Out[5]:

$$\frac{1}{5} t^5$$

In [6]:

```
#n=2
show(integrate(x^(4*2),x,0,t))
```

Out[6]:

$$\frac{1}{9} t^9$$

In [7]:

```
#n=3  
show(integrate(x^(4*3),x,0,t))
```

Out[7]:

$$\frac{1}{13}t^{13}$$

In [8]:

```
show(t+sum(f(n)*t^(4*n+1)/((4*n+1)),n,1,5))
```

Out[8]:

$$-\frac{1}{76204800}t^{21} + \frac{1}{685440}t^{17} - \frac{1}{9360}t^{13} + \frac{1}{216}t^9 - \frac{1}{10}t^5 + t$$

In [9]:

```
show(integrate(taylor(cos(x^2),x,0,20),x,0,t))
```

Out[9]:

$$-\frac{1}{76204800}t^{21} + \frac{1}{685440}t^{17} - \frac{1}{9360}t^{13} + \frac{1}{216}t^9 - \frac{1}{10}t^5 + t$$