In [1]:

```
show(derivative(cosh(x),x))
```

Out[1]:

$\sinh(x)$

In [2]:

```
show(derivative(sinh(x),x))
```

Out[2]:

$\cosh(x)$

In [3]:

```
show(taylor(cosh(x),x,0,10))
```

Out[3]:

$$\frac{1}{3628800}\,x^{10} + \frac{1}{40320}\,x^{8} + \frac{1}{720}\,x^{6} + \frac{1}{24}\,x^{4} + \frac{1}{2}\,x^{2} + 1$$

In [4]:

```
# another way of obaining power series
show((cosh(x)).series(x,11))
```

Out[4]:

$$1 + \frac{1}{2}x^{2} + \frac{1}{24}x^{4} + \frac{1}{720}x^{6} + \frac{1}{40320}x^{8} + \frac{1}{3628800}x^{10} + \mathcal{O}\left(x^{11}\right)$$

In [5]:

```
# check to see if (10)! =3628800
show(factorial(10))
```

Out[5]:

3628800

In [6]:

```
show(maxima(cosh(x)).powerseries(x,0)._sage_())
```

Out[6]:

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

In [7]:

```
show(integrate(sqrt(1+(derivative(cosh(x),x)^2)),x,0,1))
```

Out[7]:

$$\frac{1}{2}\left(e^2-1\right)e^{(-1)}$$

In [8]:

```
show(RR(integrate(sqrt(1+(derivative(cosh(x),x)^2)),x,0,1)))
```

Out[8]:

1.17520119364380

In [0]:

```

```