

In [1]:

```
f(x)=10*cosh((x-5)/10)-10*cosh(-1/2)
show(f)
```

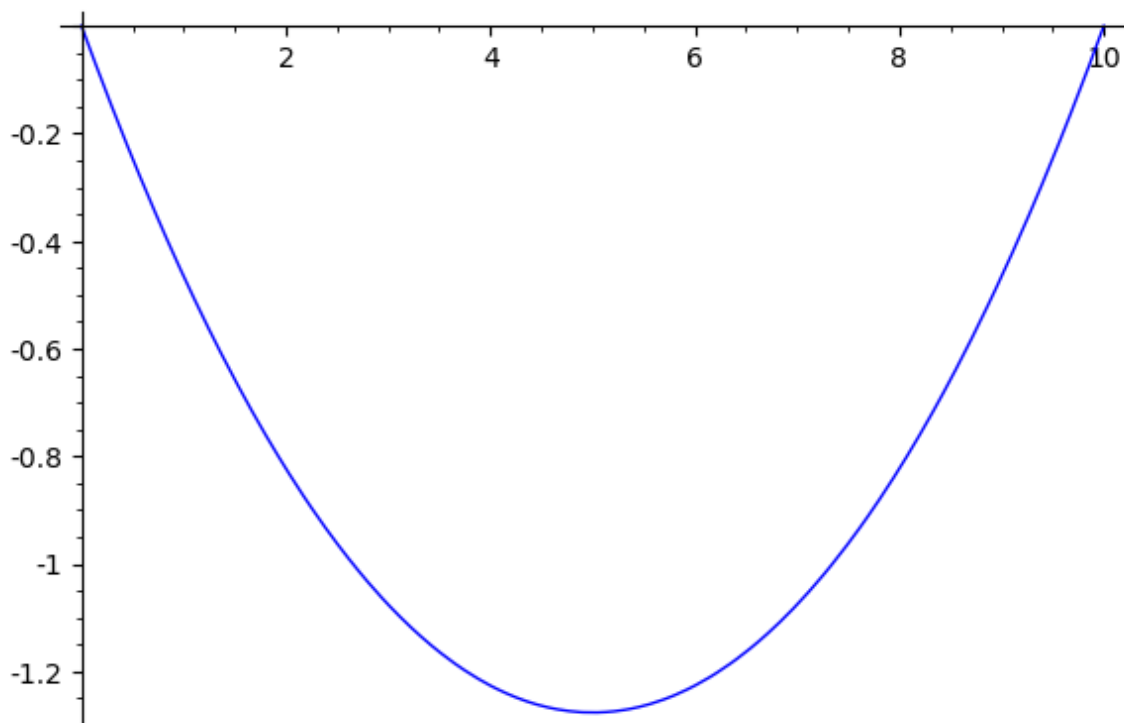
Out[1]:

$$x \mapsto -10 \cosh\left(\frac{1}{2}\right) + 10 \cosh\left(\frac{1}{10}x - \frac{1}{2}\right)$$

In [2]:

```
plot(f(x),x,0,10)
```

Out[2]:



In [3]:

```
g(x)=sqrt(1+(derivative(f(x),x)^2))
show(g)
```

Out[3]:

$$x \mapsto \sqrt{\sinh\left(\frac{1}{10}x - \frac{1}{2}\right)^2 + 1}$$

In [4]:

```
arclength=integrate(g(x),x,0,10)
show(arclength)
```

Out[4]:

$$10(e-1)e^{(-\frac{1}{2})}$$

In [5]:

```
RR(arclength)
```

Out[5]:

```
10.4219061098749
```

In [0]: