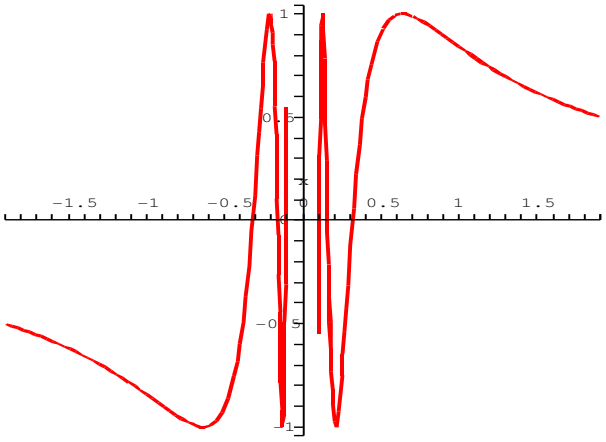
Limiti e continuita'Limiti per x-¿a

```
> restart:
> f:=x->sin(1/x);
> <br>
```

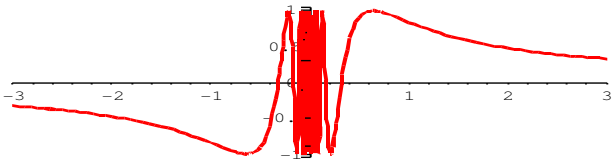
$$f := x \mapsto \sin\left(x^{-1}\right)$$

Funzione dispari

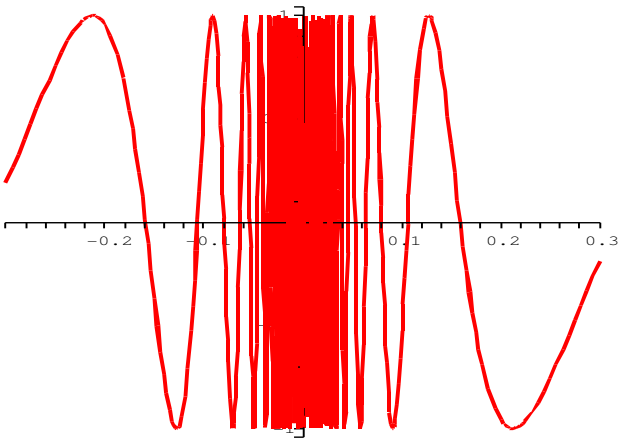
```
> a1:=plot(f(x),x=-1.9..-0.1,thickness=2,discont=true):
> a2:=plot(f(x),x=0.1..1.9,thickness=2,discont=true):
> a3:=plot(f(x),x=-3..3,thickness=2,discont=true):
> a4:=plot(f(x),x=-0.3..0.3,thickness=2,discont=true):

> a5:=plot(f(x),x=-0.05..0.05,thickness=2,discont=true):
> plots[display](a1,a2);
> <br>
```



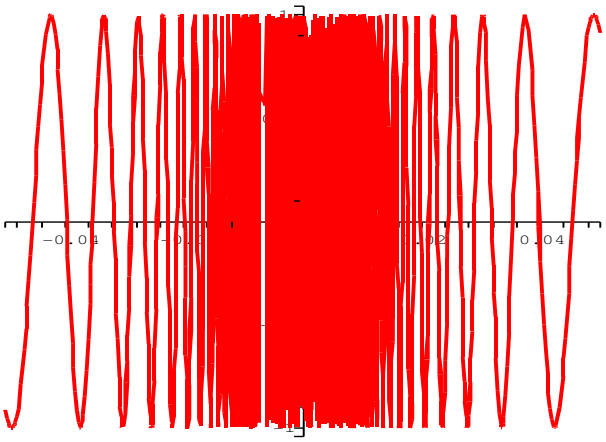

```
> plots[display](a3);
<br>
```




```
>  plots[display](a4);
```


```
>  plots[display](a5);
```

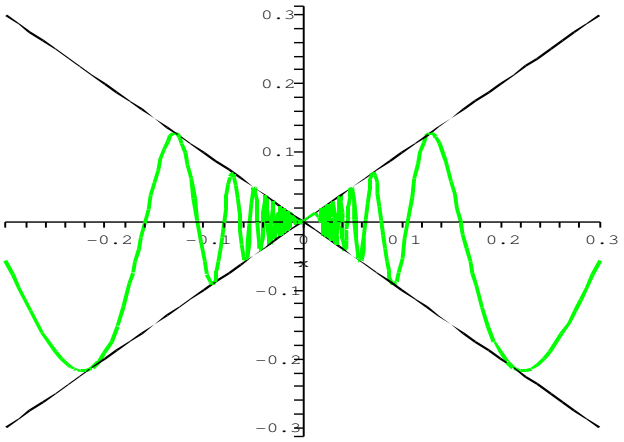




```
> restart:
> f:=x->x*sin(1/x);
<br>
```

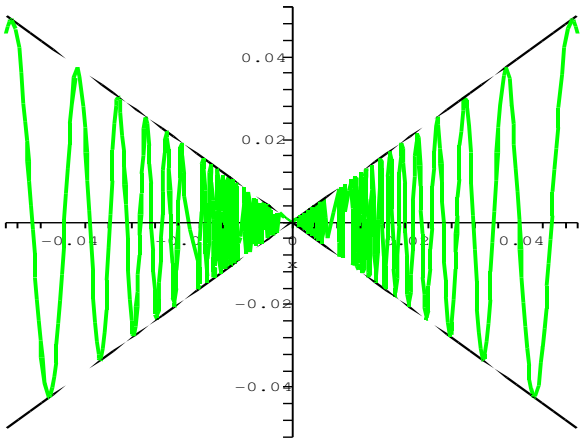
$$f := x \mapsto x \sin\left(x^{-1}\right)$$

Funzione pari

```
> a1:=plot([x,-x,f(x)],x=-0.3..0.3,thickness=[1,1,2],colour=[black,black,green]):
> a2:=plot([x,-x,f(x)],x=-0.05..0.05,thickness=[1,1,2],colour=[black,black,green]):
> plots[display](a1);
<br>
```




```
> plots[display](a2);
<br>
```

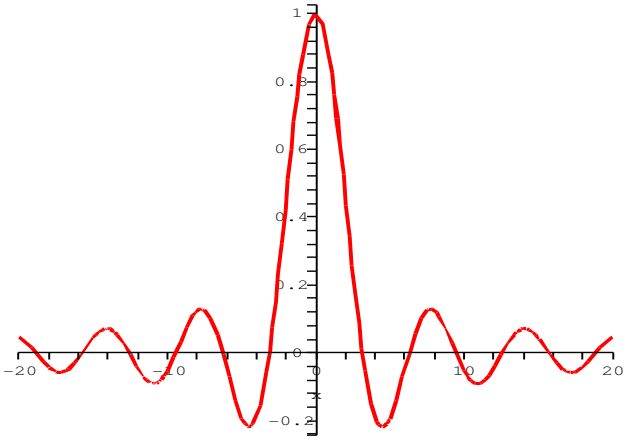



```
> restart:
> f:=x->sin(x)/x;
<br>
```

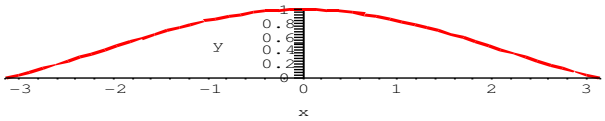
$$f := x \mapsto \frac{\sin(x)}{x}$$

Funzione pari

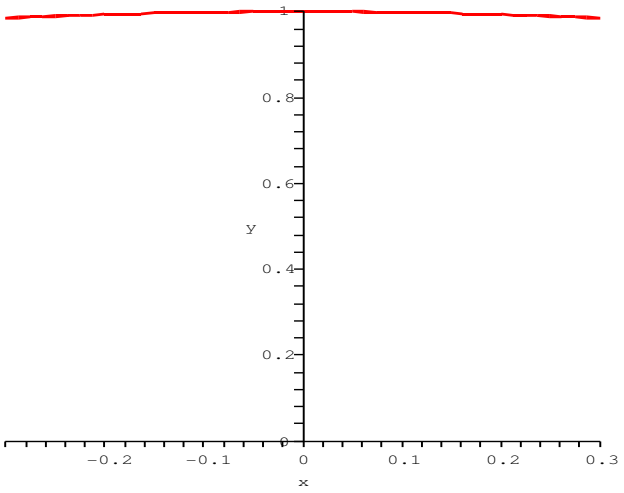
```
> a1:=plot(f(x),x=-20..20,thickness=2):
> a2:=plot(f(x),x=-Pi..Pi,y=0..1,scaling=constrained,thickness=2):
> a3:=plot(f(x),x=-0.3..0.3,y=0..1,thickness=2,scaling=constrained,thickness=2):
> plots[display](a1);
```


```
> plots[display](a2);
```


```
> plots[display](a3);
```

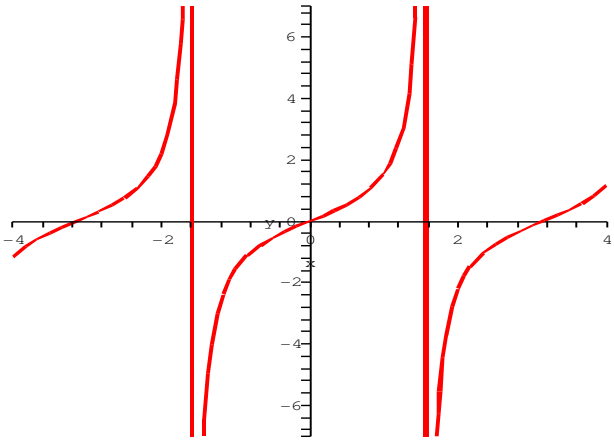




```
> restart:
> f:=x->tan(x);
<br>
```

$$f := x \mapsto \tan(x)$$

Funzione dispari

```
> plot(f(x),x=-4..4,y=-7..7,thickness=2);
<br>
```



Funzioni definite a tratti

```
> restart:
> f:=x->piecewise(x<=0,x,a+x^2);
<br>
```

$$f := x \mapsto \begin{cases} x & x \leq 0 \\ a + x^2 & \text{otherwise} \end{cases}$$

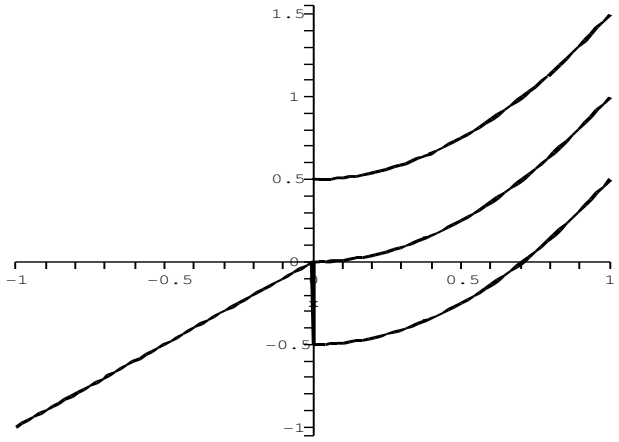
```
> 'f(x)'=f(x);
<br>
```

$$f(x) = PIECEWISE\left([x, x \leq 0], [a + x^2, otherwise]\right)$$

```
> f1:=subs(a=0,f(x));f2:=subs(a=-0.5,f(x));f3:=subs(a=0.5,f(x));
<br>
```

$$f1 := PIECEWISE\left([x, x \leq 0], [x^2, otherwise]\right)$$
$$f2 := PIECEWISE\left([x, x \leq 0], [-0.5 + x^2, otherwise]\right)$$
$$f3 := PIECEWISE\left([x, x \leq 0], [0.5 + x^2, otherwise]\right)$$

```
> d1:=plot([f1(x)],x=-1..0,color=[black],thickness=2,discont=true):
<br>
> d2:=plot([f1(x),f2(x),f3(x)],x=0..1,color=[black,black,black],thickness=2,discont=true
<br>
> plots[display](d1,d2);
```



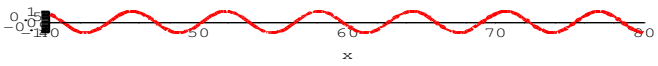
Limiti per x-¿∞

```
> restart:
> f:=x->sin(x);
<br>
```

$$f := x \mapsto \sin(x)$$

Funzione dispari

```
> plot(f(x),x=40..80,thickness=2);
<br>
```

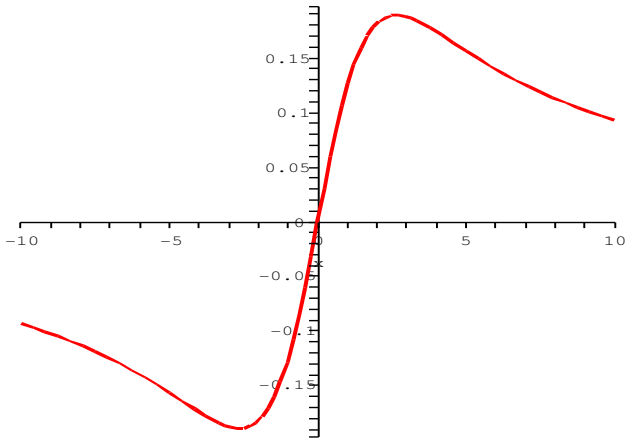



```
> restart:
> f:=x->x/(x^2+7);
<br>
```

$$f := x \mapsto \frac{x}{x^2+7}$$

Funzione dispari

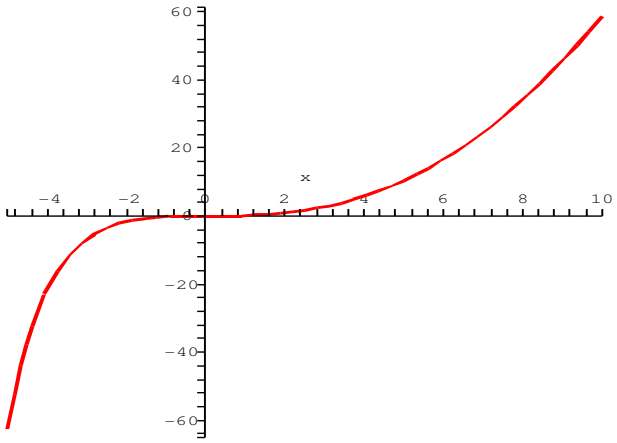
```
> plot(f(x),x=-10..10,thickness=2);
<br>
```



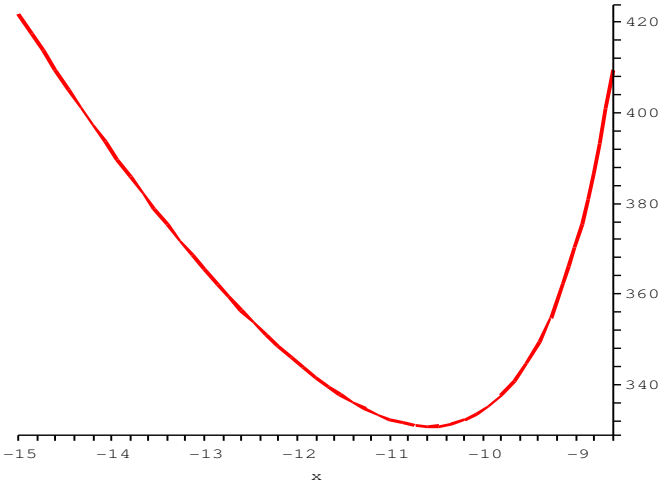
```
> restart:
> f:=x->x^3/(x+7);
<br>
```

$$f := x \mapsto \frac{x^3}{x+7}$$

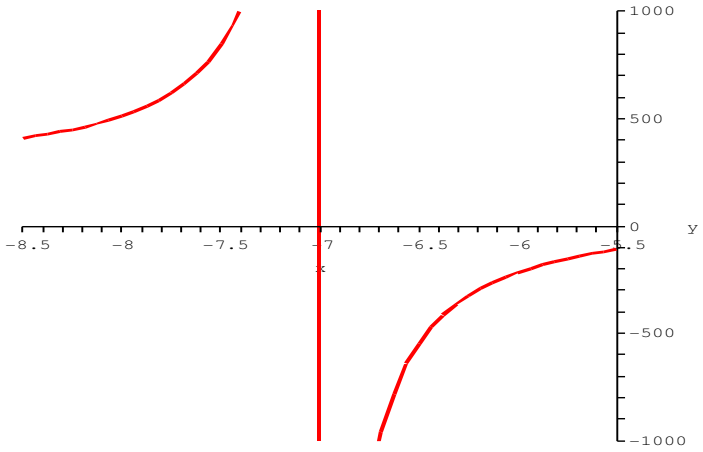
```
> plot(f(x),x=-5..10,thickness=2,discont=true);
<br>
```




```
> plot(f(x),x=-15..-8.5,thickness=2,discont=true);
<br>
```



```
> plot(f(x),x=-8.5..-5.5,y=-1000..1000,thickness=2);
<br>
```




```
> plot(f(x),x=-20..20,y=-500..500,thickness=2);
<br>
```