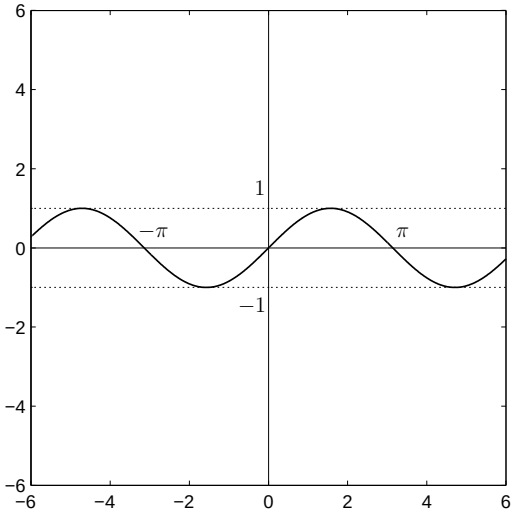
I grafici delle funzioni elementari

Funzioni goniometriche

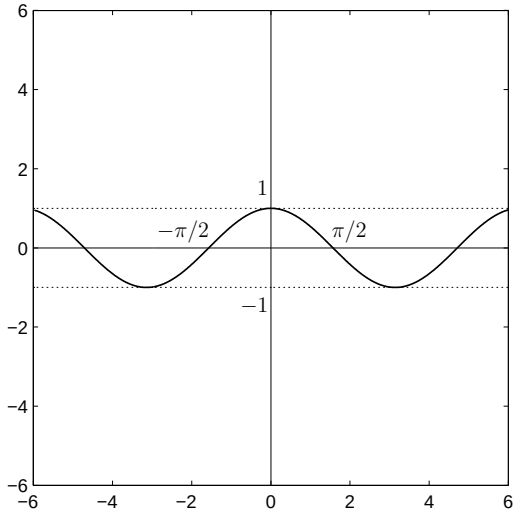
Seno



$y = \sin x$

$\text{dom} = \mathbb{R}$
$\text{cod} = [-1, 1]$

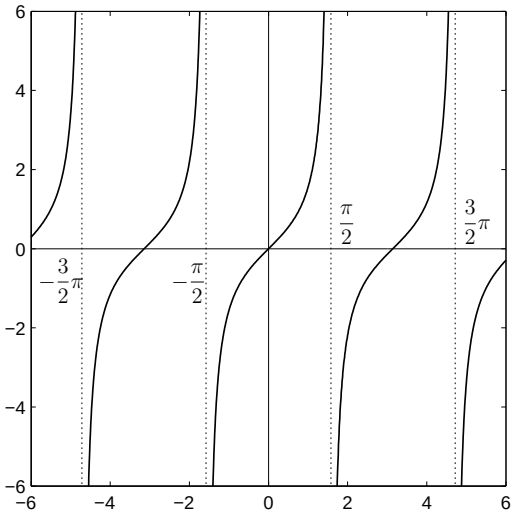
Coseno



$y = \cos x$

$\text{dom} = \mathbb{R}$
$\text{cod} = [-1, 1]$

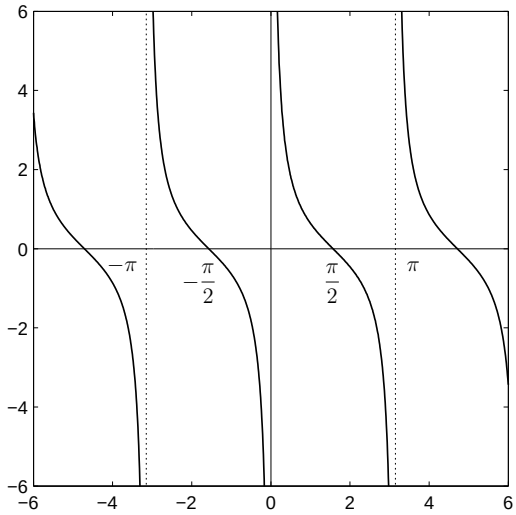
Tangente



$y = \operatorname{tg} x$

$\text{dom} = \{x \in \mathbb{R} : x \neq \pi/2 + k\pi, k \in \mathbb{Z}\}$
$\text{cod} = \mathbb{R}$

Cotangente

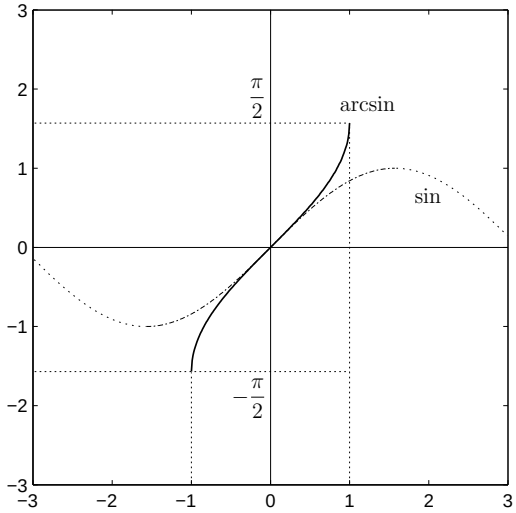


$y = \operatorname{cotg} x$

$\text{dom} = \{x \in \mathbb{R} : x \neq k\pi, k \in \mathbb{Z}\}$
$\text{cod} = \mathbb{R}$

Funzioni goniometriche inverse

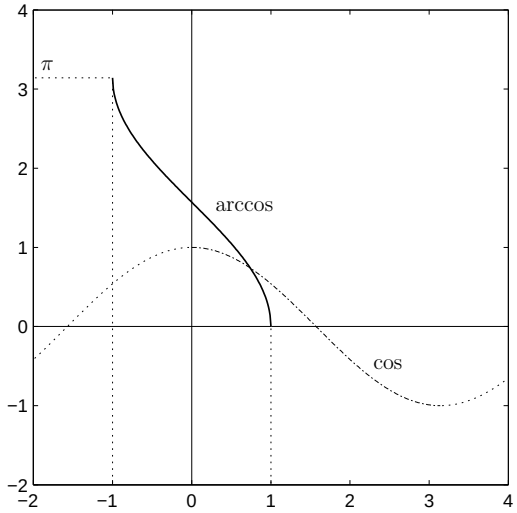
Arcoseno



$y = \arcsin x$

$\text{dom} = [-1, 1]$
$\text{cod} = [-\pi/2, \pi/2]$

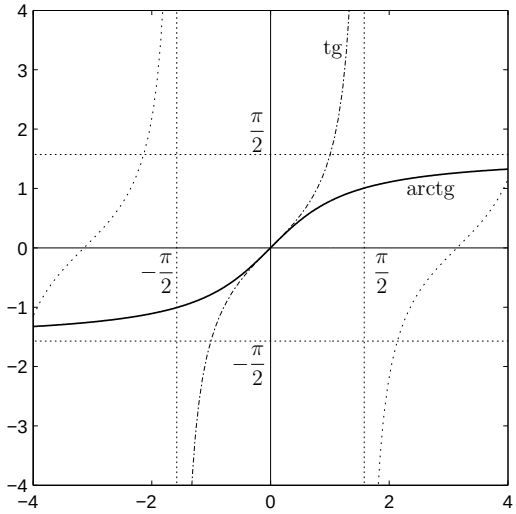
Arcocoseno



$y = \arccos x$

$\text{dom} = [-1, 1]$
$\text{cod} = [0, \pi]$

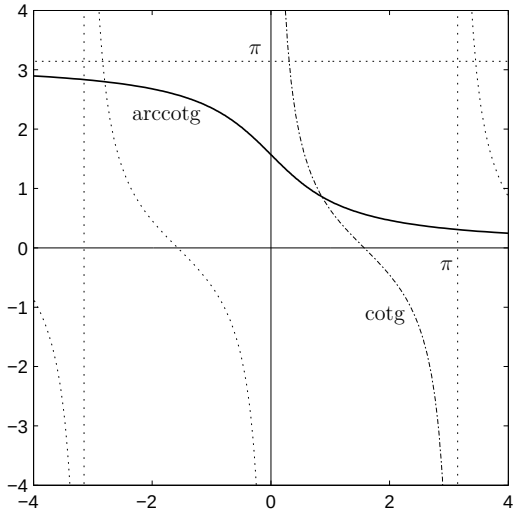
Arcotangente



$y = \text{arctg}\, x$

$\text{dom} = \mathbb{R}$
$\text{cod} = \left]-\frac{\pi}{2}, \frac{\pi}{2}\right[$

Arcocotangente

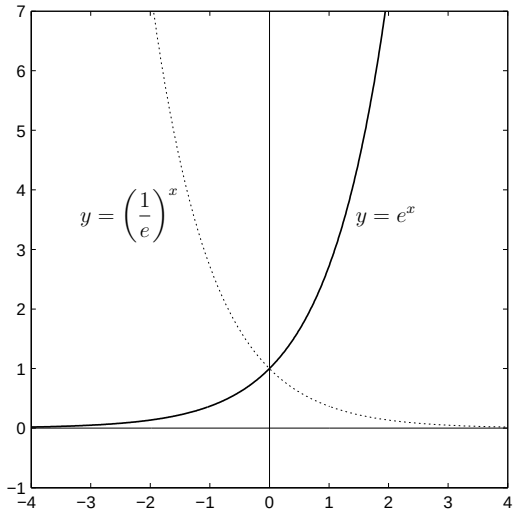


$y = \text{arccotg}\, x$

$\text{dom} = \mathbb{R}$
$\text{cod} =]0, \pi[$

Esponenziali e logaritmi

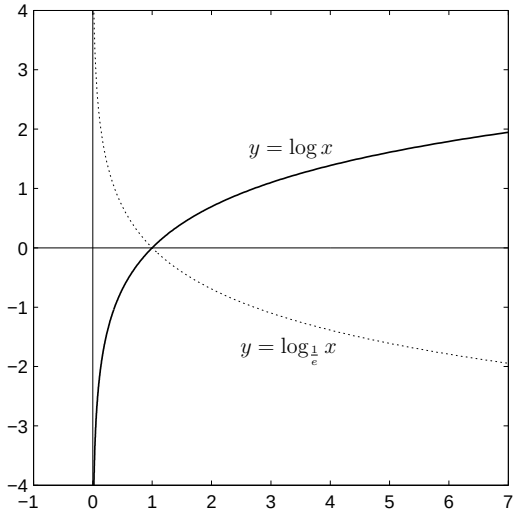
La funzione esponenziale



$y = e^x$; $y = (1/e)^x$

dom $= \mathbb{R}$
cod $= \mathbb{R}^+$

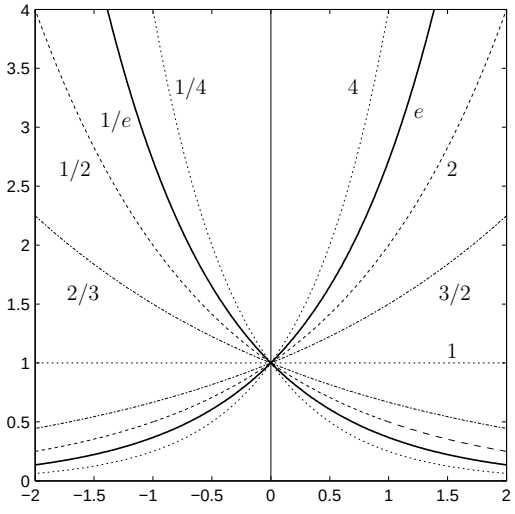
La funzione logaritmo



$y = \log x$; $y = \log_{\frac{1}{e}} x$

dom $= \mathbb{R}^+$
cod $= \mathbb{R}$

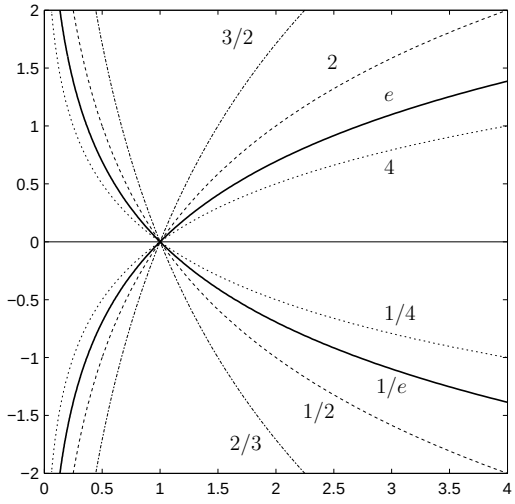
Esponenziali in varie basi



$y = a^x$

$0 < a < 1 \Rightarrow$ funz. decrescente
$a > 1 \Rightarrow$ funz. crescente

Logaritmi in varie basi

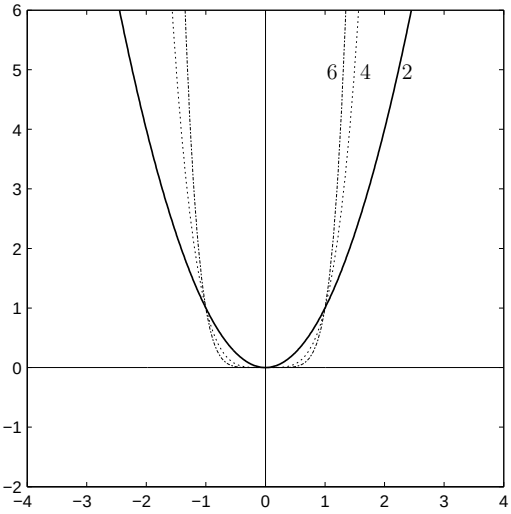


$y = \log_a x$

$0 < a < 1 \Rightarrow$ funz. decrescente
$a > 1 \Rightarrow$ funz. crescente

Potenze, reciproci e radici

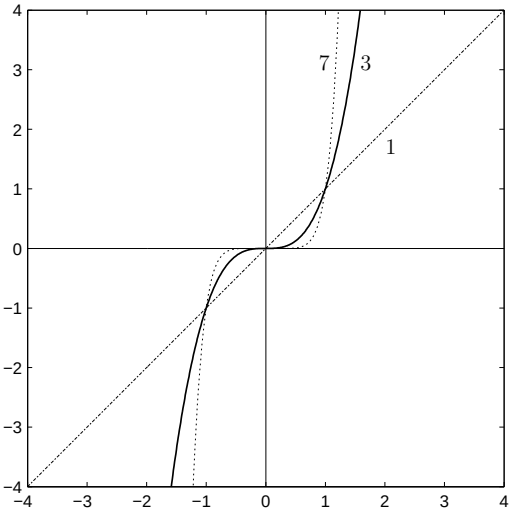
Potenze a esponente pari



$y = x^n$, $n > 0$ pari

dom $= \mathbb{R}$
cod $= \mathbb{R}_0^+$

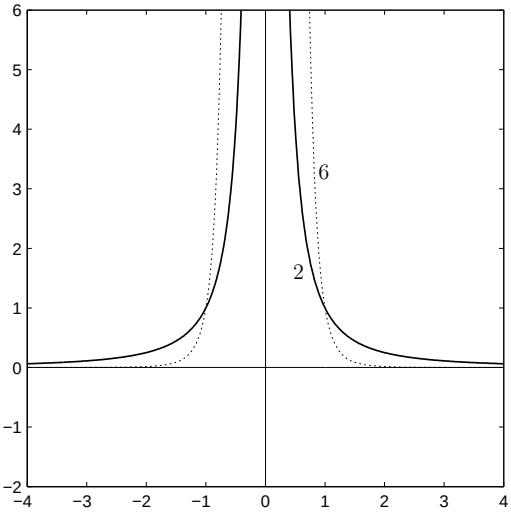
Potenze a esponente dispari



$y = x^n$, $n > 0$ dispari

dom $= \mathbb{R}$
cod $= \mathbb{R}$

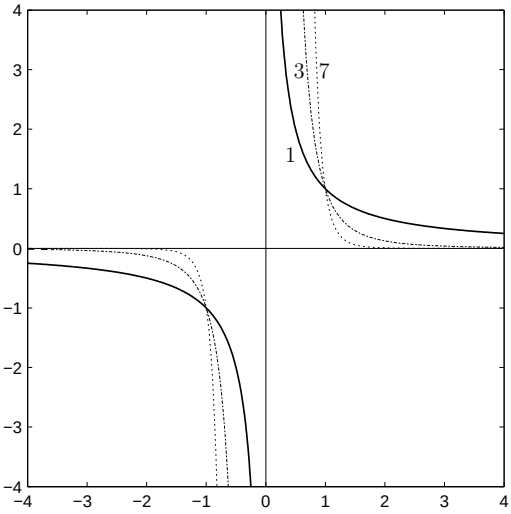
Reciproci di potenze pari



$y = \dfrac{1}{x^n}$, $n > 0$ pari

dom $= \mathbb{R} - \{0\}$
cod $= \mathbb{R}^+$

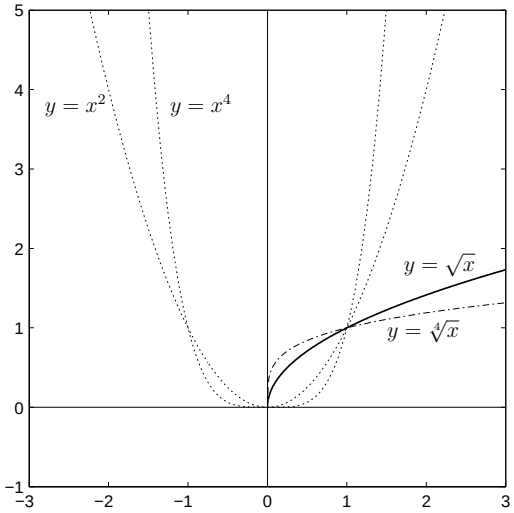
Reciproci di potenze dispari



$y = \dfrac{1}{x^n}$, $n > 0$ dispari

dom $= \mathbb{R} - \{0\}$
cod $= \mathbb{R} - \{0\}$

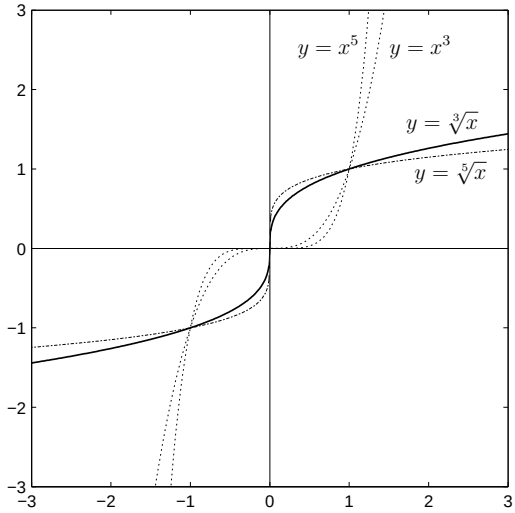
Radici di indice pari



$y = \sqrt[n]{x}$, $n > 0$ pari

$\text{dom} = \mathbb{R}_0^+$
$\text{cod} = \mathbb{R}_0^+$

Radici di indice dispari

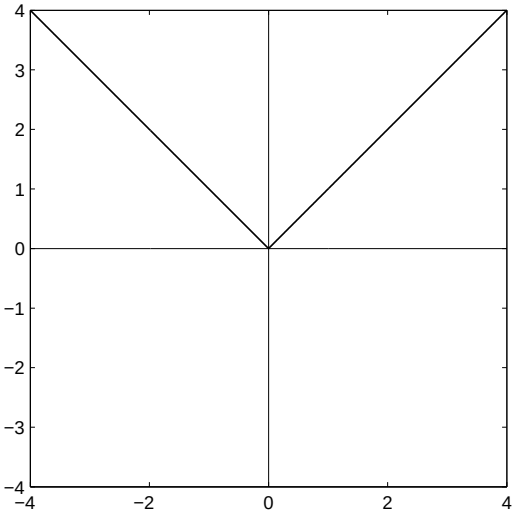


$y = \sqrt[n]{x}$, $n > 0$ dispari

$\text{dom} = \mathbb{R}$
$\text{cod} = \mathbb{R}$

Valore assoluto e segno

La funzione valore assoluto

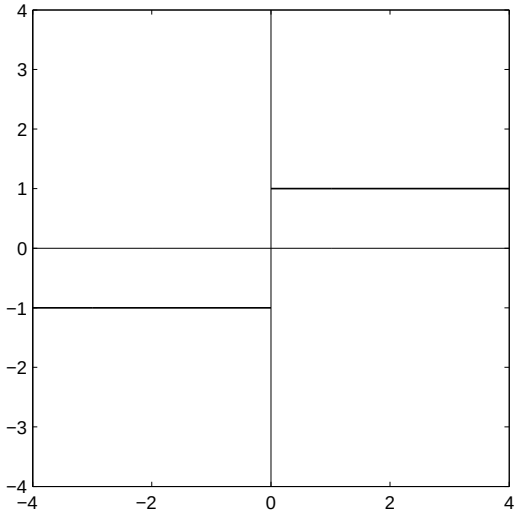


$y = |x|$

$\text{dom} = \mathbb{R}$
$\text{cod} = \mathbb{R}_0^+$

$$|x| = \begin{cases} x & \text{se } x \geq 0 \\ -x & \text{se } x < 0 \end{cases}$$

La funzione segno



$y = \operatorname{sign} x$

$\text{dom} = \mathbb{R} - \{0\}$
$\text{cod} = \{-1, 1\}$

$$\operatorname{sign} x = \begin{cases} 1 & \text{se } x > 0 \\ -1 & \text{se } x < 0 \end{cases}$$