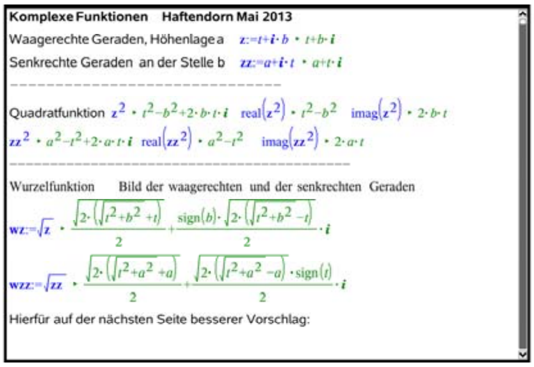
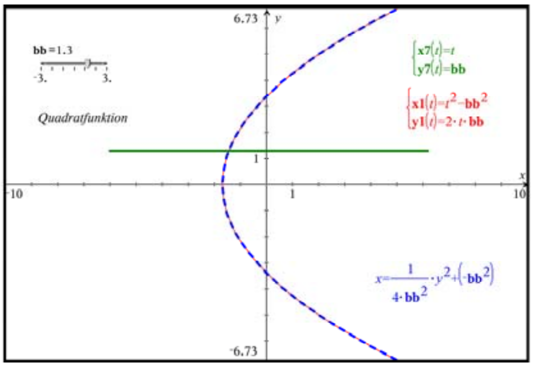
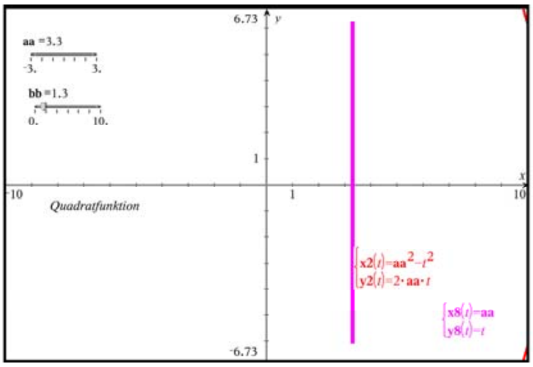
Quadrat- und Wurzelfunktion



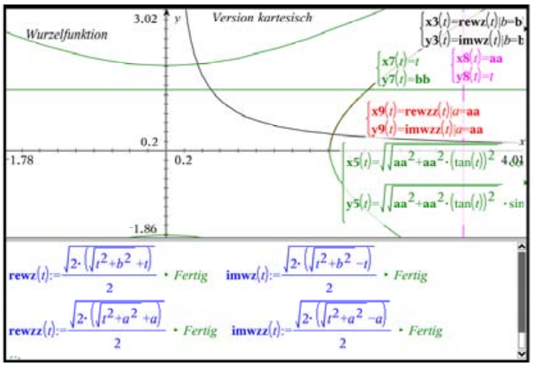
1.1



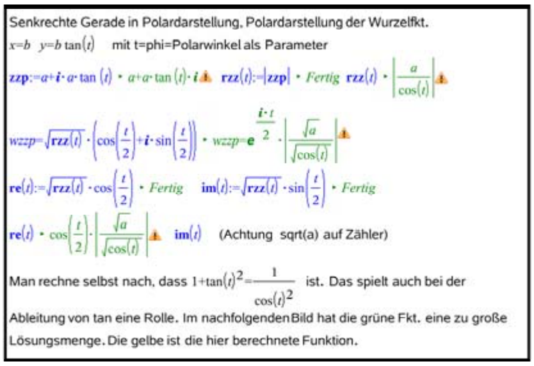
1.2



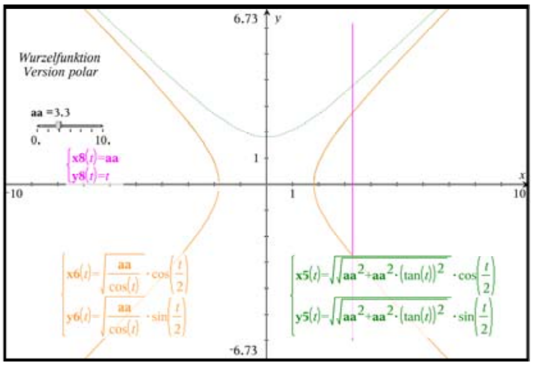
1.3



1.4

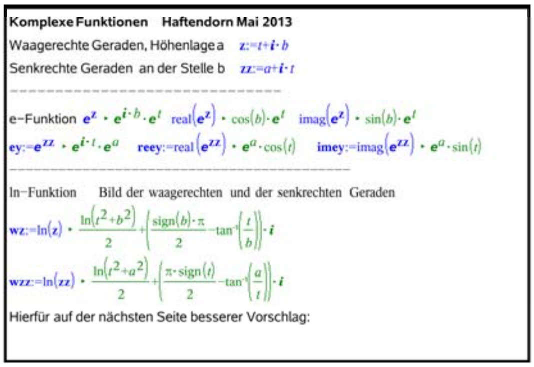


1.5

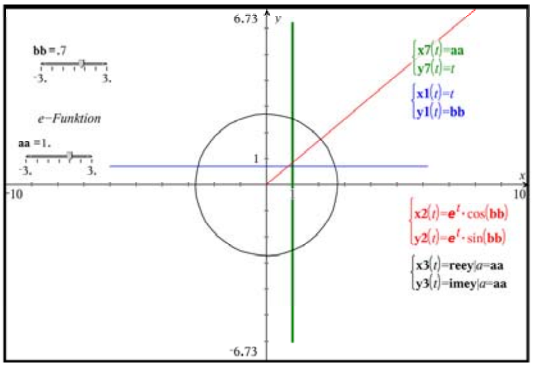


1.6

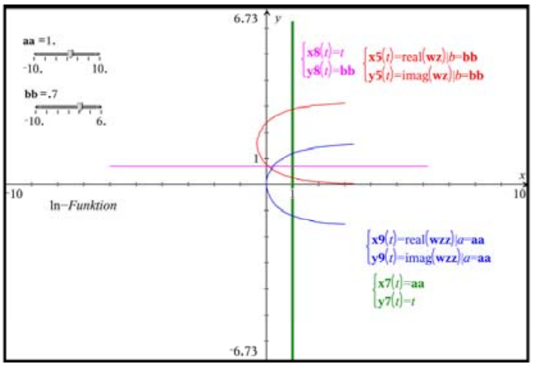
e- und ln-Funktion



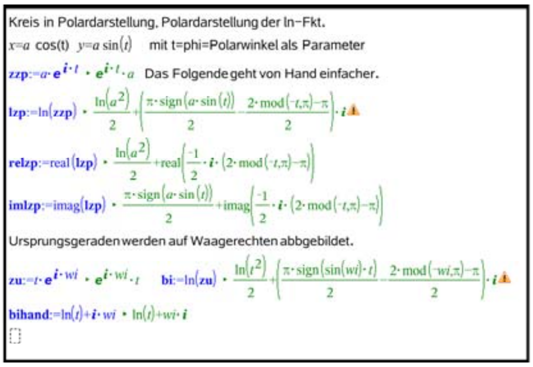
2.1



2.2



2.3


Kreis in Polardarstellung, Polardarstellung der ln−Fkt.

$x=a$ cos(t) $y=a\sin(t)$ mit t=phi=Polarwinkel als Parameter

$\mathbf{zzp}:=a\cdot e^{i\cdot t} \blacktriangleright e^{i\cdot t}\cdot a$ Das Folgende geht von Hand einfacher.

$\mathbf{lzp}:=\ln(\mathbf{zzp}) \blacktriangleright \frac{\ln(a^2)}{2}+\left(\frac{\pi\cdot \mathrm{sign}(a\cdot\sin(t))}{2}-\frac{2\cdot \mathrm{mod}(-t,\pi)-\pi}{2}\right)\cdot i$

$\mathbf{relzp}:=\mathrm{real}(\mathbf{lzp}) \blacktriangleright \frac{\ln(a^2)}{2}+\mathrm{real}\left(\frac{-1}{2}\cdot i\cdot(2\cdot\mathrm{mod}(-t,\pi)-\pi)\right)$

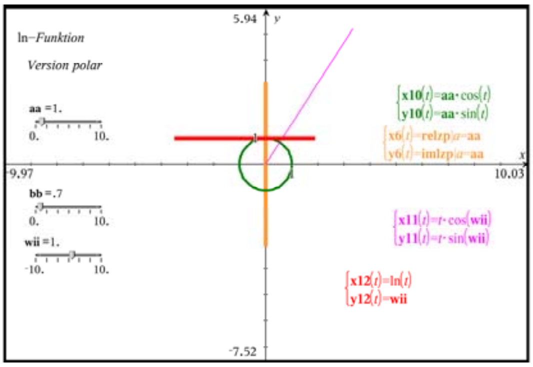
$\mathbf{imlzp}:=\mathrm{imag}(\mathbf{lzp}) \blacktriangleright \frac{\pi\cdot\mathrm{sign}(a\cdot\sin(t))}{2}+\mathrm{imag}\left(\frac{-1}{2}\cdot i\cdot(2\cdot\mathrm{mod}(-t,\pi)-\pi)\right)$

Ursprungsgeraden werden auf Waagerechten abbgebildet.

$\mathbf{zu}:=t\cdot e^{i\cdot wi} \blacktriangleright e^{i\cdot wi}\cdot t$ $\mathbf{bi}:=\ln(\mathbf{zu}) \blacktriangleright \frac{\ln(t^2)}{2}+\left(\frac{\pi\cdot\mathrm{sign}(\sin(wi)\cdot t)}{2}-\frac{2\cdot\mathrm{mod}(-wi,\pi)-\pi}{2}\right)\cdot i$

$\mathbf{bihand}:=\ln(t)+i\cdot wi \blacktriangleright \ln(t)+wi\cdot i$

2.4



2.5