

## **- A conformal map of (the cartesian grid of) the rectangle**

$$\{x+iy \in \mathbb{C} \mid -1 \leq x \leq 1, 0 \leq y \leq 1\}$$

by means of the (principal value of the) complex logarithm, while avoiding a circular neighborhood of 0 with radius  $e^{-3}$

```
> restart:with(plots):evalf(log(sqrt(2)),4);  
Warning, the name changecoords has been redefined
```

0.3466

So 0.35 is a reasonably close upper bound for  $\log(|z|) (= \Re(\log(z)))$ , for  $z$  in the given rectangle. We let Maple plot its conformal logarithmic image. We deliberately chose an odd number, namely 25, for the second grid number to ensure the visibility of the red symmetry axis; which is the image of the part of the imaginary axis contained in the rectangle.

```
> conformal(-log(z), z=-1..1+I, 3..-0.35-Pi*I, grid=[25,25], numxy=  
[200,200]);
```

