```
Aufgabe 1)
. f(x) = c - a*
                 und f(y) = loga(y) = Y
  loga (y) = loga (c. ax) -
             => loga(c) + loga(ax)
        Y = loga(c) + X
• f(x) = c \cdot x^{\alpha} and f(x) = \log(x) = x and f(y) = \log(y) = y
   log(y) = log(c. xa)
           = 1 log(c) + log(xa)
            => log(c) + a.log(x)
        Y = log(c) + a \cdot X
• f(x) = \frac{5}{\sqrt{5}\sqrt{2}} = 5 \cdot (2x^2)^{-\frac{1}{3}} and f(y) = \log(y) = y
   und f(x) = \log(x) = X
    log(y) = log(5.(2x2)-3)
            => log(5) + log((2x2)-3)
            => log(5) + (-1) log(2x2)
            => log(5) + (-{1)( log(2) + log(x2))
            => \log(5) + (-\frac{1}{3})(\log(2) + 2\log(x))
            => log(5) - \frac{1}{3}log(2) - \frac{2}{3}log(x)
             => \log(\frac{5}{\sqrt{2}}) - \frac{2}{3}\log(x)
         Y = \log(\frac{5}{\sqrt[3]{2}}) - \frac{2}{3}X
f(0) = log( 5 /2)
```

```
· q(x) = 105 · (2e) - 100 und q(y) = \n(y) = Y
     In (y) = In (105. (2e) 100)
              => In (105) + In ((2e) - 100)
              => In (105) + (-100) · In (22) · X
              => In (105) + In ((28) 700) x
 # Y = In(105) + In((2e) - 100) x
 q(0) = In(105)
 q'(x) = \ln((2e)^{-\frac{1}{100}}) \approx -0.01633
• h(x) = \frac{10^{2x}}{25x} \left(\frac{10^{2x}}{25x}\right)^2 und h(y) = \log(y) = Y
 \log(y) = \log\left(\frac{10^{2x}}{2^{6x}}\right)^2
             \Rightarrow 2 \cdot \log \left( \frac{10^{2x}}{26x} \right)
             => 2 · log ( 2-5x . 102x)
             => 2 ( log (2-5x) + log (102x))
             => 2 (-5x-log(2) + 2x-log(10))
             => -10x.log(2) + 4x log(10)
                 2 \times (-5 \log(2) + 2 \log(10))
2 \times (\log(2^{-5}) + \log(100))
                 2 x · log ( 100 )
                  X · log ( 10000 )
 Y = x \cdot \log(\frac{10000}{1024})
h(0) = 0
h'(x) = log(\frac{10000}{1024}) \approx 0.9837
```