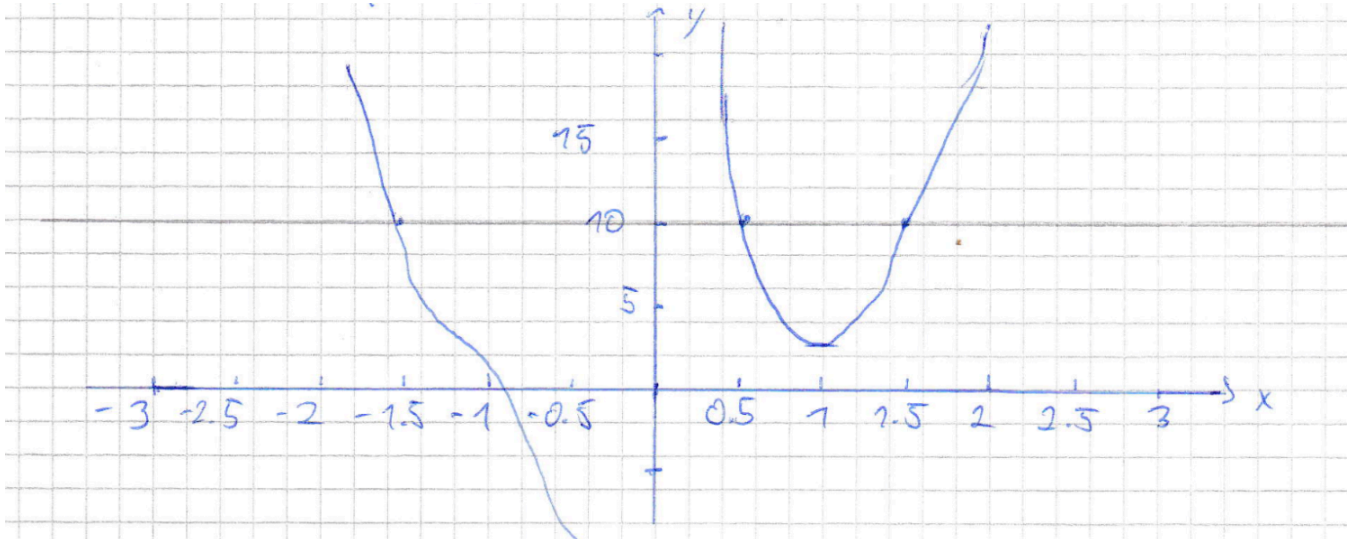
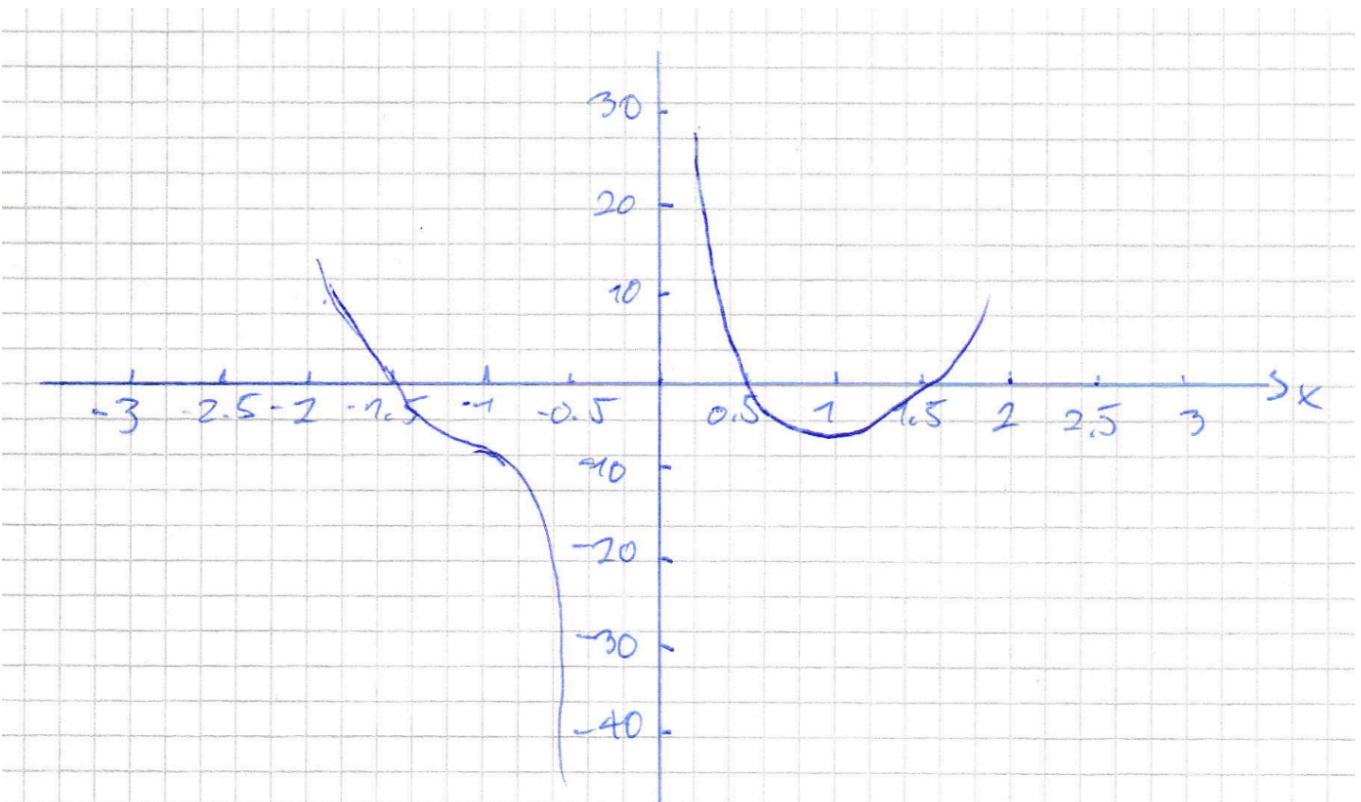


# NMIT1 P06 Aufg1 - ungerpet

$$f(x) = e^{\{x^2\}} + x^{\{-3\}}$$



Umformen  $\Rightarrow f(x) = e^{\{x^2\}} + x^{\{3\}} - 10$



**Intervalle:**

1. Intervall  $[-2;-1]$
2. Intervall  $[0;1]$
3. Intervall  $[1;2]$

**Newtonverfahren**

$$f(x) = e^x x^2 + x^{-3} - 10$$

$$f'(x) = 2xe^x x^2 - 3/x^4$$

$$x[n+1] = x_n - (f(x_n) / f'(x_n))$$

n    $x_n$       Intervall  $[1, 2]$

0   2

1   1.7950

2   1.6251

3   1.5308

4   1.5086

**Vereinfachtes Newtonverfahren**

$$x[n+1] = x_n - (f(x_n)/f'(x_0))$$

n    $x_n$       Intervall  $[0,1]$

0   0.5

1   0.4847

2   0.4857

3   0.4856

4   0.4856

**Sekantenverfahren**

$$x[n+1] = x_n - (x_1 - x_{n-1}) / (f(x_n) - f(x_{n-1})) * f(x_0)$$

n    $x_n$       Intervall  $[-2,-1]$

0   -1.0

1   -1.2

2   -1.8610

3   -1.3454

4   -1.4326

5   -1.5594