

Lösungshinweise

1.1 $f(x) = 0,25x^4 - 2x^2 - 2,25$

1.2 $x_{N1} = -3$ $x_{N2} = 3$ $P_{Max}(0; -2,25)$ $P_{Min1,2}(\pm 2; -6,25)$

$$\lim_{x \rightarrow -\infty} f(x) = \infty \quad \lim_{x \rightarrow +\infty} f(x) = \infty$$

1.5 $y = f_3(x) = 3x - 1$

1.6 $S_1(-2,19; -7,56)$ $S_2(0,69; 1,06)$

1.7 $A \approx 7,90FE$

2.1 $f'(x) = -2x \cdot e^{-0,5x^2}$

2.3 $x \approx 7,13$

2.4 $X = \begin{pmatrix} 1 & 2 \\ 8 & 0 \end{pmatrix}$

3.1 $P_x(2; 0)$ $P_y(0; 2)$

3.2 $P_{Min}(2; 0)$ $P_{Max}(0; 2)$

3.3 $R_{W1}(141; 0,71)$ $R_{W2}(-141; 1,42)$

3.5 $A \approx 2,39FE$

4.1 $y = f(x) = -\frac{5}{32}x^2 + 10$

4.2 $b \approx 9,24m$ $h \approx 6,67m$

4.3 42,2%