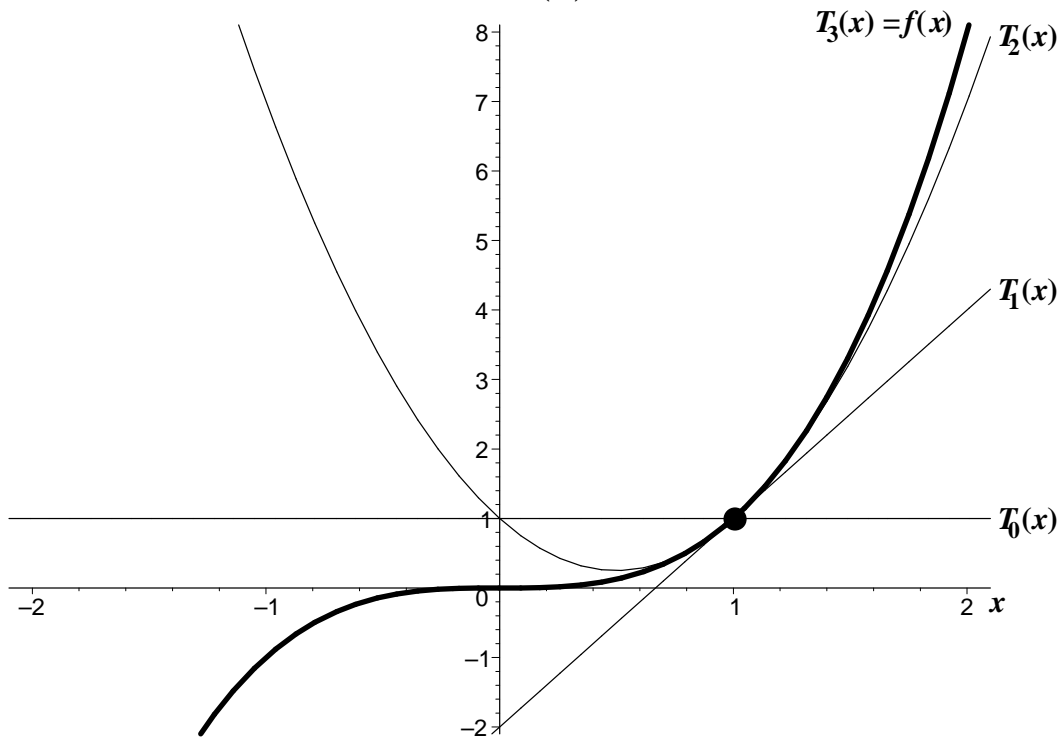


Taylorentwicklung von $f(x) = x^3$ an der Stelle $x_0 = 1$



$$T_0(x, 1) = 1$$

$$T_1(x, 1) = 1 + 3(x-1) = 3x-2$$

$$T_2(x, 1) = 1 + 3(x-1) + 3(x-1)^2 = 3x^2 - 3x + 1$$

$$T_3(x, 1) = 1 + 3(x-1) + 3(x-1)^2 + (x-1)^3 = x^3$$

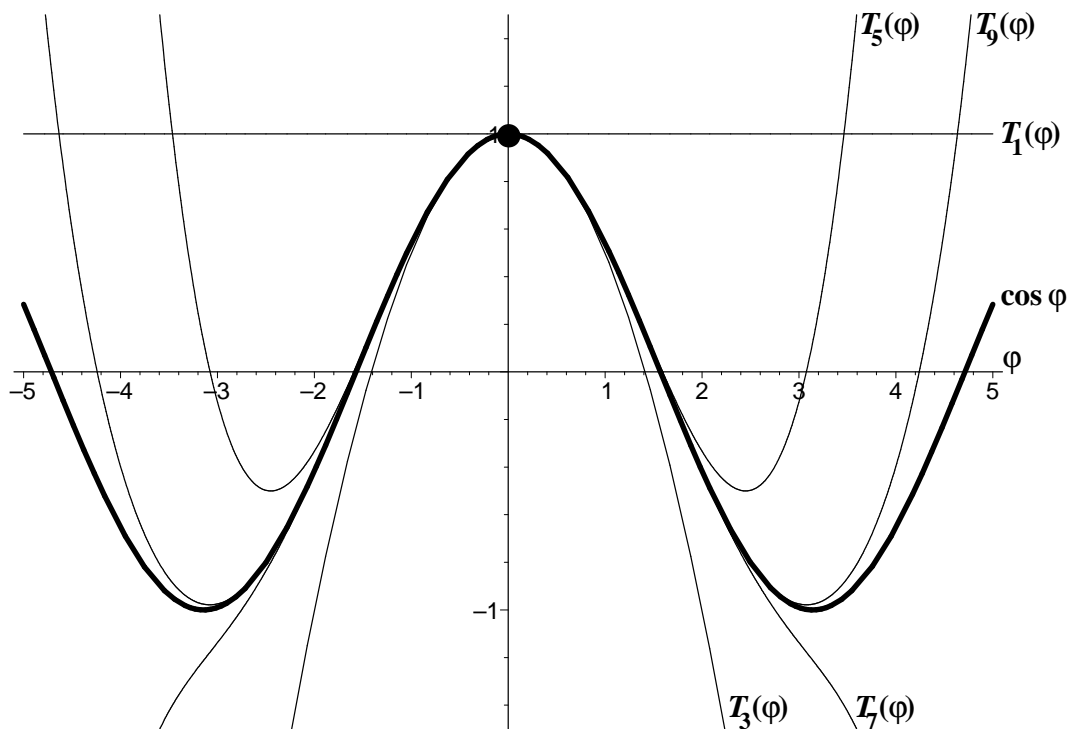
Konstante

Gerade: Tangente

Parabel

kubische Funktion

Taylorentwicklung von $f(\varphi) = \cos \varphi$ an der Stelle $\varphi_0 = 0$



$$T_0(\varphi, 0) = T_1(\varphi, 0) = 1, \quad T_2(\varphi, 0) = T_3(\varphi, 0) = 1 - \frac{\varphi^2}{2}, \quad T_4(\varphi, 0) = T_5(\varphi, 0) = 1 - \frac{\varphi^2}{2} + \frac{\varphi^4}{24}$$

$$T_6(\varphi, 0) = T_7(\varphi, 0) = 1 - \frac{\varphi^2}{2} + \frac{\varphi^4}{24} - \frac{\varphi^6}{720}, \quad T_8(\varphi, 0) = T_9(\varphi, 0) = 1 - \frac{\varphi^2}{2} + \frac{\varphi^4}{24} - \frac{\varphi^6}{720} + \frac{\varphi^8}{40320}$$