Taylorův polynom 3. stupně

$$y = x^2 + x + 3 - e^{2x+1} \qquad x = \frac{1}{2}$$

$$y_{\left(\frac{1}{2}\right)} = \frac{1}{4} + \frac{1}{2} + 3 - e^{1+1} = \frac{1+2+12}{4} - e^2 = \underline{\underline{\frac{15}{4} - e^2}}$$

$$y' = 2x + 1 - e^{2x+1} \cdot 2 = \underline{\underline{2x - 2e^{2x+1} + 1}}$$

$$y'_{\left(\frac{1}{2}\right)} = 2 \cdot \frac{1}{2} - 2e^2 + 1 = \underline{\underline{2 - 2e^2}}$$

$$y'' = 2 - 2e^{2x+1} \cdot 2 = \underline{\underline{2 - 4e^{2x+1}}}$$

$$y''_{\left(\frac{1}{2}\right)} = \underline{\underline{2 - 4 \cdot e^2}}$$

$$y''' = -4e^{2x+1} \cdot 2 = \underline{\underline{-8e^{2x+1}}}$$

$$y'''_{\left(\frac{1}{2}\right)} = \underline{\underline{-8e^2}}$$

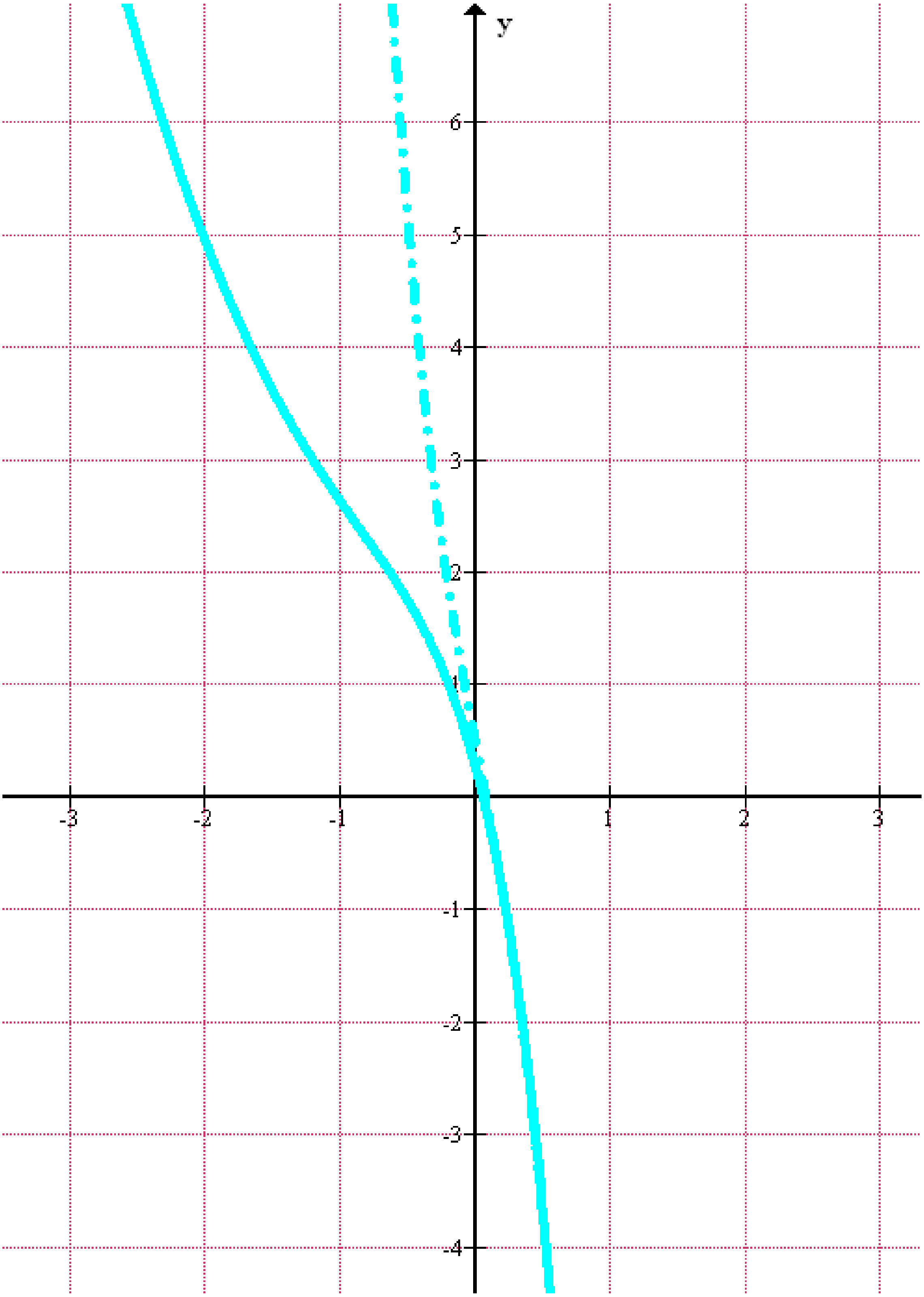
$$T: \left(\frac{15}{4} - e^2\right) + \frac{2-2e^2}{1!}\left[x - \frac{1}{2}\right]^1 + \frac{2-4e^2}{2!}\left[x - \frac{1}{2}\right]^2 +$$

$$+ \frac{-8e^2}{3!}\left[x - \frac{1}{2}\right]^3 = \frac{15}{4} - e^2 + \frac{2-2e^2}{1}\left(x - \frac{1}{2}\right) + \frac{2(1-2e^2)}{2}\left(x - \frac{1}{2}\right)^2 -$$

$$- \frac{8e^2}{6}\left(x - \frac{1}{2}\right)^3 = \underline{\frac{1}{4}(15 - 4e^2) + (2-2e^2) \cdot \left(x - \frac{1}{2}\right) + (1-2e^2) \cdot \left(x - \frac{1}{2}\right)^2 -}$$

$$\underline{- \frac{4}{3} e^2 \left(x - \frac{1}{2}\right)^3}$$

Obrázek 1. Grafické znázornění funkce a jejího Taylorova polynomu 3. stupně



Zdroj: program Graph