

Tečna a normála

$$f(x) = \frac{\sqrt{3x^2 + 4x + 2}}{x}$$

$$T = [1, 3]$$

$$f(1) = \frac{\sqrt{3+4+2}}{1} = \sqrt{9} = 3$$

$$f'(x) = \frac{1}{2\sqrt{3x^2+4x+2}} \cdot (6x+4)x - \frac{\sqrt{3x^2+4x+2}}{x^2}$$

$$f'(1) = \frac{6+4}{2 \cdot 3} - 3 = \frac{10}{6} - 3 = \frac{5}{3} - 3 = \frac{5-9}{3} = -\frac{4}{3}$$

t: $y - 3 = -\frac{4}{3}(x - 1)$

$$y - 3 = -\frac{4}{3}x + \frac{4}{3}$$

$$0 = 4x + 3y - 13$$

n: $y - 3 = +\frac{3}{4}(x - 1)$

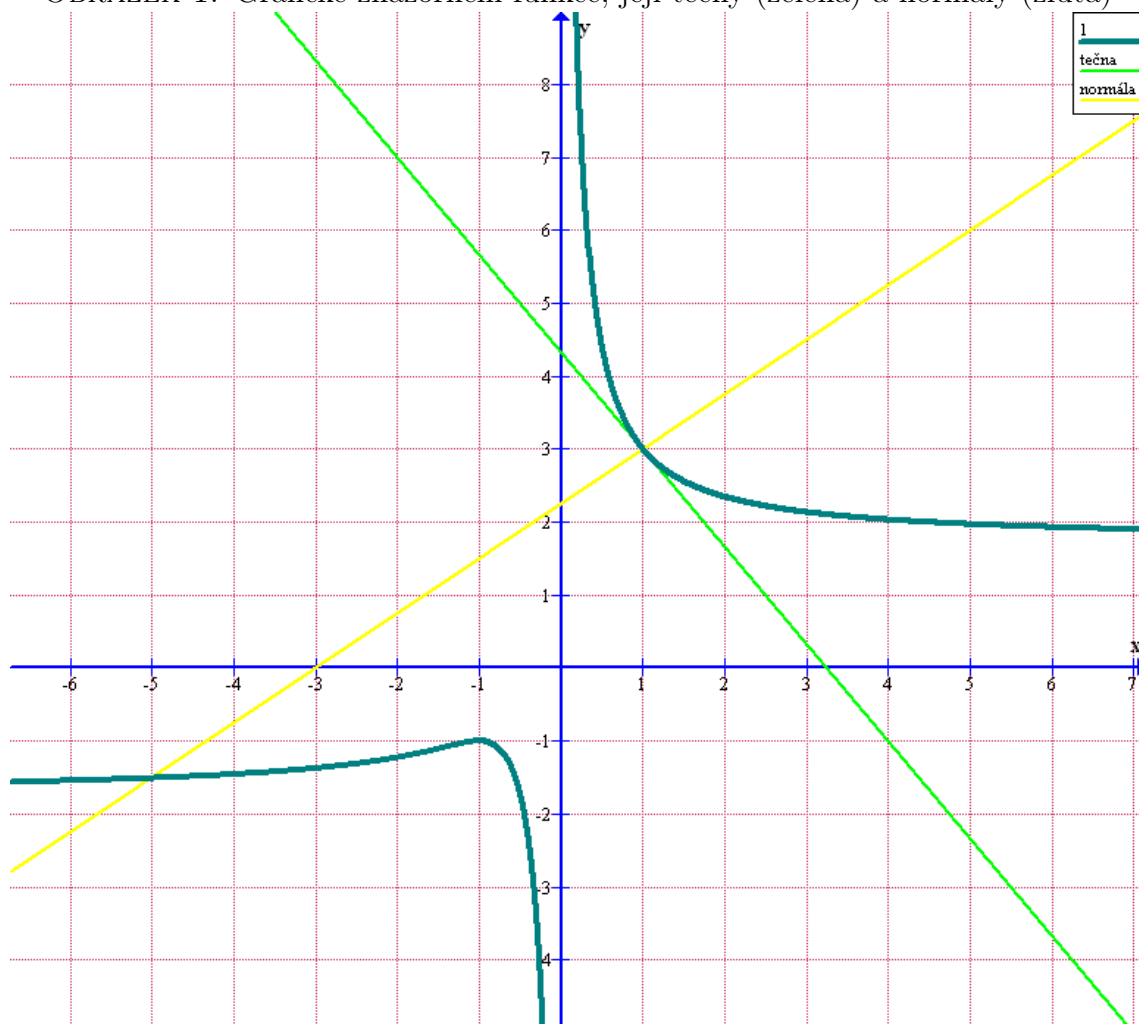
$$y - 3 = \frac{3}{4}x - \frac{3}{4} \quad | \cdot y + 3$$

$$0 = \frac{3}{4}x - \frac{3}{4} + 3 - y \quad | \cdot 4$$

$$0 = 3x - 3 + 12 - 4y$$

$$0 = 3x - 4y + 9$$

OBRÁZEK 1. Grafické znázornění funkce, její tečny (zelená) a normály (žlutá)



Zdroj: program Graph