

ül. 22

$$f(x) = x \ln x - x \ln 5$$

a) 1. määravää piirannon kiittäminen

tuleb $\ln x - \ln 5$

$$st. x =]0; \infty[$$

2. st. punkut $P(x; 0)$

$$x \ln x - x \ln 5 = 0$$

$$x (\ln x - \ln 5) = 0$$

$$x_1 = 0 \text{ ei kati! MP!}$$

$$\ln x - \ln 5 = 0$$

$$\ln x = \ln 5 \Rightarrow x = 5$$

$$P(5; 0)$$

3. minimumi leidmistes $y' = 0$

$$f'(x) = \ln x + 1 - \ln 5$$

$$\ln x + 1 - \ln 5 = 0$$

$$\ln x = \ln 5 - 1$$

$$\ln x = \ln 5 - \ln e$$

$$\ln x = \ln \frac{5}{e} \Rightarrow x = \frac{5}{e}$$

Kontrollin minimumi

$$f''(x) = \frac{1}{x}$$

$$f''\left(\frac{5}{e}\right) = \frac{e}{5} > 0, \text{ st. minima}$$

$$\Rightarrow x_{\min} = \frac{5}{e}$$

a) Punkt punkut leidud, st. $(5; 0)$

Seian punktija tuisu $f'(5) = \ln 5 + 1 - \ln 5 = 1$

~~$f'(5) = \ln 5 + 1 - \ln 5 = 1$~~

Keostan võrandi $y - 0 = 1(x - 5)$

$$y = x - 5$$

N: . . .