1. $f(x) = 3^{2+x} - 1$

- graf
- osnovna funkcija : $y_1 = 3^x$

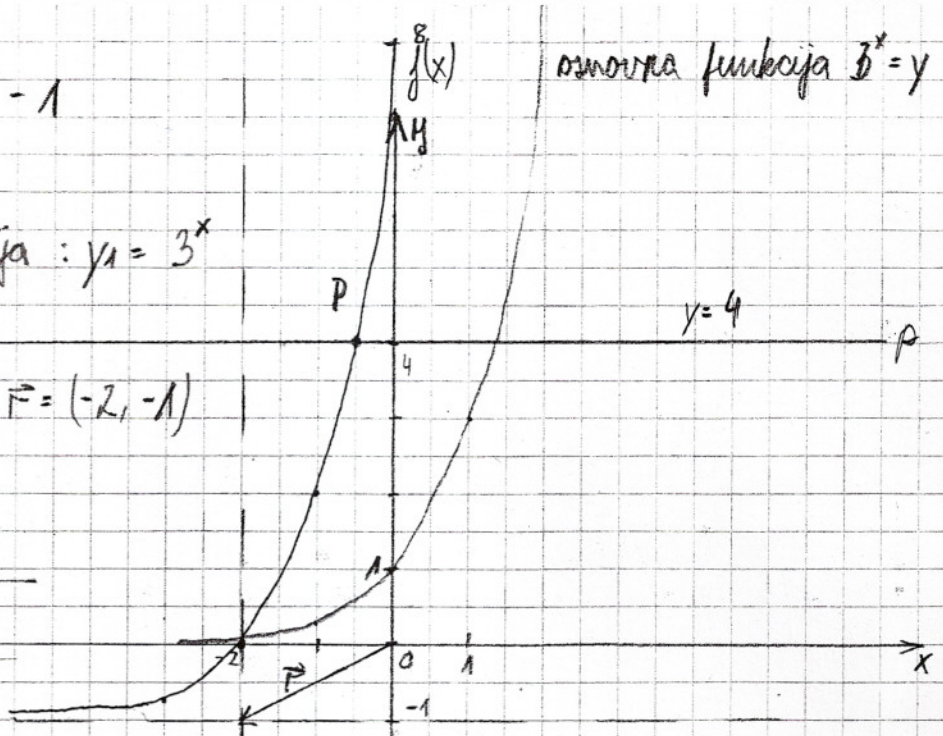
nato

1. vzp. premik za $\vec{r} = (-2, -1)$

$x \longmapsto x+2$

$y \longmapsto y+1$

$y_2 = 3^{x+2} - 1$



b) presečišče : $y_1 = y_2$

$f(x) = 3^{2+x} - 1$

$y = 4$

$y_1 = y_2$

$3^{2+x} - 1 = 4$

$3^{2+x} = 5 \quad / \cdot \log$

$(x+2) \cdot \log 3 = \log 5$

$x = \frac{\log 5}{\log 3} - 2$

$x = 0{,}54$ $\quad P(0{,}54, 4)$

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2. a) $2^{x-4} + 3 \cdot 2^{x-2} - 2^{x-1} = 20$

$2^{x-4}(2^0 + 3 \cdot 2^2 - 2^3) = 2^2 \cdot 5$

$2^{x-4} \cdot (1 + 12 - 8) = 2^2 \cdot 5 \quad / : 5$

$2^{x-4} = 2^2 \Longrightarrow x - 4 = 2$

$x = 6$ ✓

b) $\log(x+1) - 2\log x - \log 6 = 0$

$\log(x+1) = \log x^2 + \log 6$

$\log(x+1) = \log(6x^2) \quad / \log$

$x+1 = 6x^2$

$6x^2 - x - 1 = 0$ ✓

$x_1 = \frac{1}{2} \quad x_2 = -\frac{1}{4}$ // logaritmand je neg.

$D = (-b)^2 - 4ac = 1 + 24 = 25$

$x_{1/2} = \frac{-b \pm \sqrt{D}}{2a} = \frac{1+5}{12} = \frac{1}{2}$

$x_2 = \frac{1-5}{12} = -\frac{1}{4}$ //

c) $\sqrt[x]{2} = \frac{1}{8}$

$2^{\frac{1}{x}} = 2^{-3} \Rightarrow \frac{1}{x} = -3$

$-3x = 1$

$x = -\frac{1}{3}$ — ✓

d) $\log_3(1 + \log_2(x+3)) = 1$

$3^1 = 1 + \log_2(x+3)$

$2 = \log_2(x+3)$

$2^2 = x + 3$

$x = 1$

$0 < x$

✓

3. $g(x) = 1 - \ln x$

-graf:

osnovna funkcija: $y = \ln x$

$\ln_e e = 1$

$\ln_e 1 = 0$

$\ln_e 7,39 = 2$

$\ln_e 0,37 = -1$

nato

1. $Z_x \rightarrow x \mapsto x$

$y \mapsto -y$

$y_1 = -\ln x$

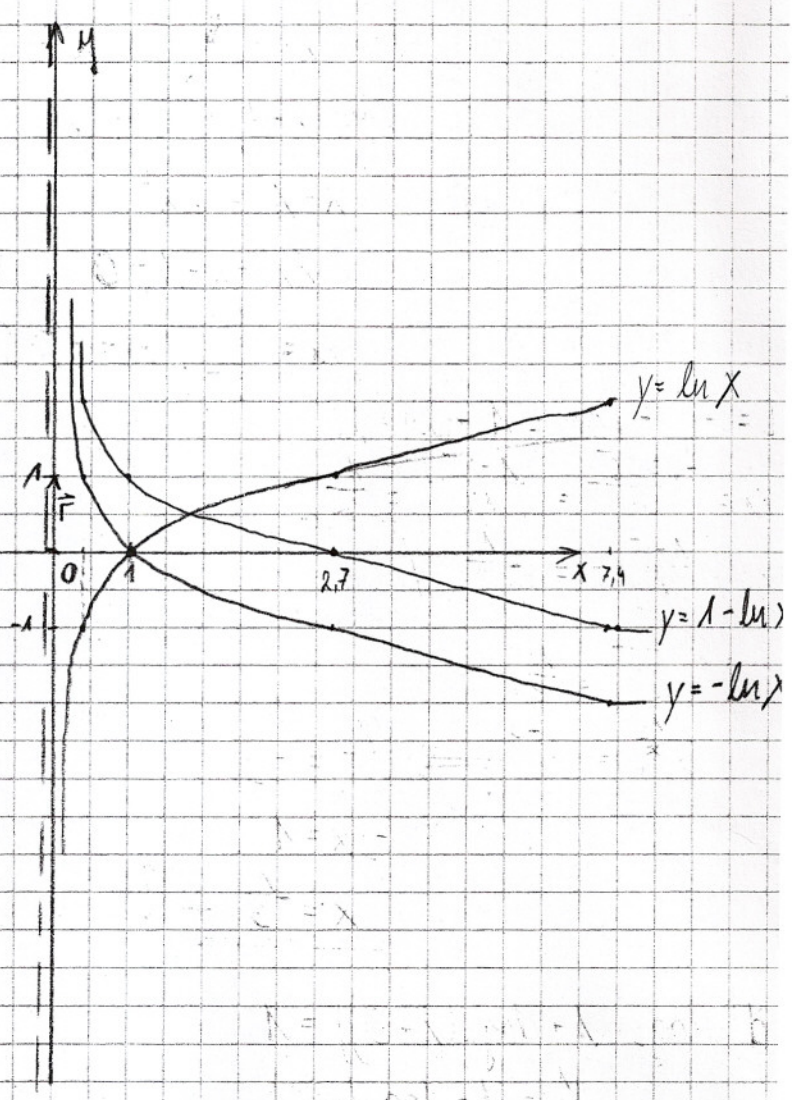
nato

2. vzp. premik za $\vec{r} = (0,1)$

$x \longmapsto x$

$y \longmapsto y - 1$

$y_2 = 1 - \ln x$



- D_g: $\mathbb{R}^+$

Logaritmand mora biti pozitiven: $x > 0$ ✓

- Z_g: $\mathbb{R}$ ✓

- ničla: $x = 0 \rightarrow$ pogoj,

$0 = -\ln x + 1$

$\ln x = 1$

$e^{\hat{}} = x$

$x = e = 2,7$ ✓

ničla je pri $x = 2,7$.

Inverzna funkcija:

$g^{-1}(x) = e^{-x+1}$

$x \longleftrightarrow y$

$x = 1 - \ln_e y$

$\log_e$

$\ln_e y = (1 - x)$

$e^{(1-x)} = y = g^{-1}(x)$ ✓

odl (5)

Super !!!

Art