

Popuniti odmah!

IME I PREZIME: **MARTIN SEOMAK**

BROJ INDEKSA:

MATEMATIKA 2: ZAVRŠNI KOLOKVIJ Trajanje 120 minuta. Ispit se održava sukladno objavljenim pravilima. Na snazi je Pravilnik o stegovnoj odgovornosti studenata.

Broj ↓
bodova
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15
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1. Odrediti integracijom (analitički): $\int_{-4}^{-1} x^2 e^x dx$.
2. Odrediti numeričkom integracijom: $\int_{-4}^{-1} x^2 e^x dx$.
3. Zadane su točke $A(2, 2, 4)$, $B(0, -1, 3)$ i $C(-1, 0, 2)$. Koliki je kut između pravaca AB i AC ?
4. Ispitati domenu i ekstreme funkcije $f(x, y) = x^2 + y^2 + \frac{2}{xy}$.
5. Riješiti: $y' + 2xy = x - 3$.
6. Riješiti: $y'' - 4y' + 4y = 4$.

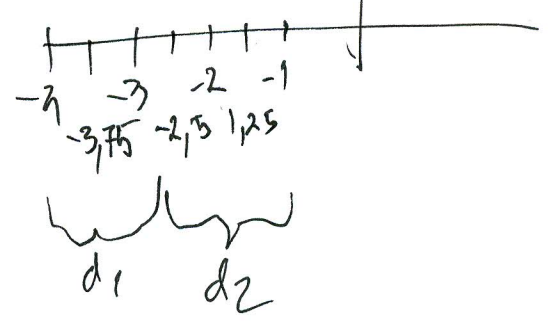
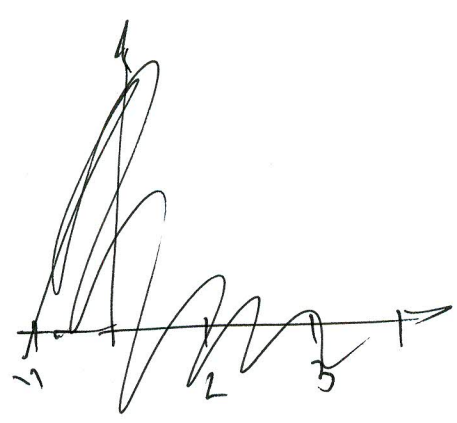
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1. $\int_{-4}^{-1} x^2 e^x dx = \int_{-4}^{-1} x^2 e^x dx = 1,36$ ~~...~~

2. $\int_{-4}^{-1} x^2 e^x dx$



~~...~~

i	x_i	y
0	-4	-0,293050
1	-3,75	-0,330712
2	-2,5	-0,513032
3	-1,25	-0,44766
4	-1	-0,367808

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$$S = \frac{h}{6} (f_0 + 4f_1 + f_2)$$

$$= \frac{1,5}{6} (0,29305 + 1,322848 + 0,933)$$

$$S_1 = 0,532232$$

$$S_2 = 0,6678275$$

$$\sum_{i=1}^2 S_i \approx 1,2000$$

$$1. f(x, y) = x^2 + y^2 + \frac{2}{xy}$$

$$Df(x, y) = \mathcal{L}$$

$$x \neq 0$$

$$y \neq 0$$

$$Df(x, y) = \underbrace{(-\infty, 0) \cup (0, \infty)} \times \underbrace{\{(y, x) \in \mathbb{R}^2 : x \neq 0 \wedge y \neq 0\}}$$

$$\frac{\partial}{\partial x} f'(x, y) = 2x - \frac{2}{x^2 y} \checkmark$$

$$\frac{\partial}{\partial y} f'(x, y) = 2y - \frac{2}{y^2 x} \checkmark$$

$$2x - \frac{2}{x^2 y} = 0$$

~~2x = 2~~

$$2x = \frac{2}{x^2 y} \quad | \cdot x^2 y$$

$$2x \cdot x^2 y = 2 \quad | : 2$$

$$x \cdot x^2 y = 1 \quad \times$$

$$x = 0 \quad \times$$

$$2y - \frac{2}{x^2 y} = 0$$

$$2y = \frac{2}{x^2 y}$$

~~2y = 2~~
~~y = 1~~
~~y \cdot x^2 y = 1~~
~~y \cdot x^2 y = 1~~
~~y = 1~~

$$2y \cdot x^2 y = 2$$

$$y \cdot y^2 = 1 \quad \times$$

$$y = 0$$

FUNKTION NEMÁ ŽÁDNÉ EKSTREME

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