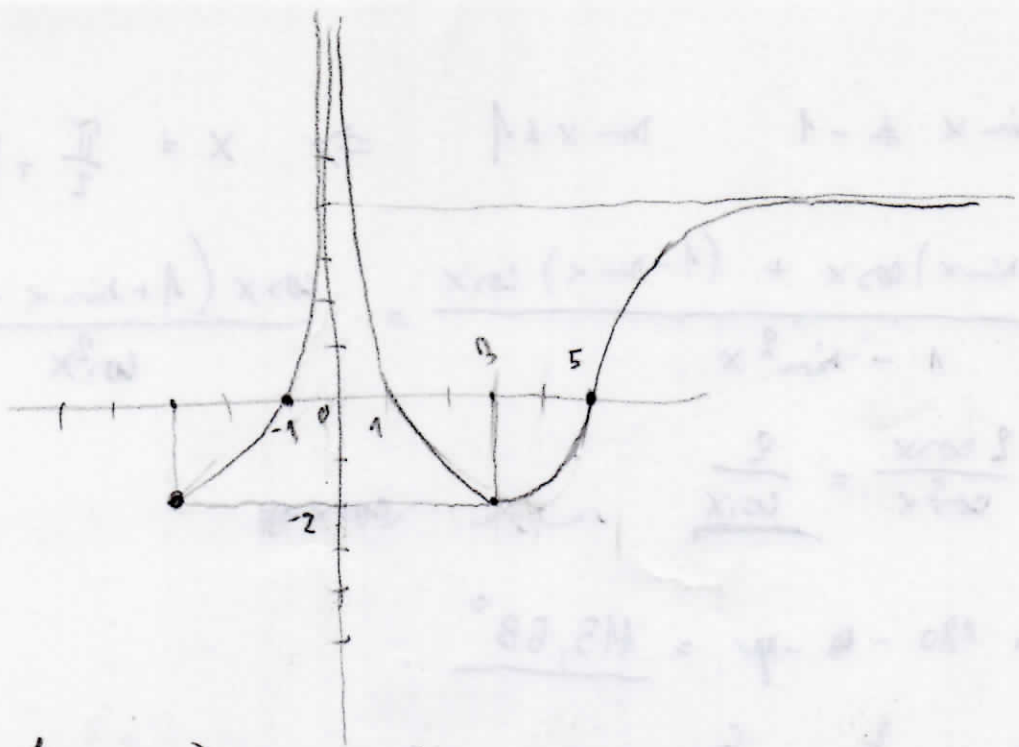


1



a)  $H_f \in \mathbb{R} \setminus \langle -2; \infty \rangle$

d) -2

b) neklesajúca

e) nemá 15 celých koreňov rovnice ani koreňov  $\Rightarrow NE$

c) ANO, ústredie -2

f)  $\langle -3; 0 \rangle ; (0; 3) ; \langle 3; \infty \rangle$

2)  $\log_{\frac{1}{2}}^2(x+1) + 5 \log_{\frac{1}{2}}(x+1) - 6 = 0$

$t = \log_{\frac{1}{2}}(x+1)$

$x + 1 > 0$

$t^2 + 5t - 6 = 0$

$x > -1$

$D = 25 + 24 = 49$

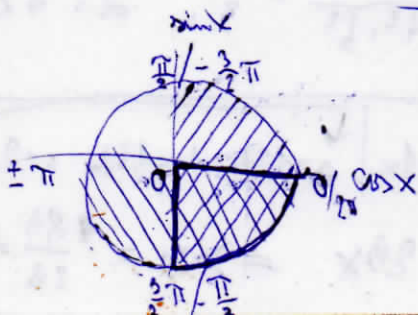
~~$x_1 = -6$~~   ~~$x_2 = 1$~~

$\log_{\frac{1}{2}}(x+1) = 1 \Leftrightarrow \left(\frac{1}{2}\right)^1 = x+1 \Rightarrow x_1 = -\frac{1}{2}$

$\log_{\frac{1}{2}}(x+1) = -6 \Leftrightarrow \left(\frac{1}{2}\right)^{-6} = x+1 \Rightarrow$

$\Rightarrow x+1 = 64 \Rightarrow x_2 = 63$

3



...  $\left(\frac{3}{2}\pi; 2\pi\right)$

...  $\left(0; -\frac{\pi}{2}\right)$

$$4) \sin x \neq -1 \quad \sin x \neq 1 \Rightarrow x \neq \frac{\pi}{2} + k \cdot \pi, k \in \mathbb{Z}$$

$$\frac{(1 + \sin x) \cos x + (1 - \sin x) \cos x}{1 - \sin^2 x} = \frac{\cos x (1 + \sin x + 1 - \sin x)}{\cos^2 x} =$$

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

$$5) \alpha = 180 - \beta - \gamma = \underline{115,68^\circ}$$

$$\frac{a}{\sin \alpha} = \frac{b}{\sin \beta} = \frac{c}{\sin \gamma} \Rightarrow a = \frac{b \cdot \sin \alpha}{\sin \beta} = \frac{16,52 \cdot \sin 115,68}{\sin 98^\circ 49' 48''} =$$

$$= 23,74 \text{ cm}$$

$$c = \frac{b \cdot \sin \gamma}{\sin \beta} = \underline{11,35 \text{ cm}}$$

- 6) a) Prizma je určená 2 body nebo bodem a různorovinnými vektorem  
 kvádra je určena 2 vnitřními, 3 body nebo bodem a 2 různorovinnými vektorem  
 b) novina nachází střed s rovinou  $\rho$

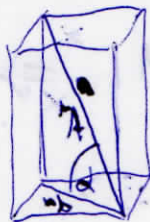
$$14) V = a \cdot b \cdot c \quad a = 2 \times \quad b = 4 \times \quad c = 5 \times$$

$$V = 2 \text{ m} \cdot 4 \text{ m} \cdot 5 \text{ m} \quad a = 2 \text{ cm} \quad b = 4 \text{ cm} \quad c = 5 \text{ cm}$$

$$V = 40 \times^3$$

$$40 = 4 \times^3$$

$$\underline{\underline{x = 1 \text{ cm}}}$$



$$S = 2(ab + bc + ac) = 2(8 + 20 + 10) = 76 \text{ cm}^2$$

$$\cos \alpha = \frac{m_2}{m_1} = \frac{\sqrt{2^2 + 4^2}}{\sqrt{2^2 + 4^2 + 5^2}} = \frac{2}{3} \quad \alpha = 48,18^\circ$$

$$m_1 = \sqrt{a^2 + b^2 + c^2} = \underline{6,7 \text{ cm}}$$

$$7) m_1 = \sqrt{a^2 + b^2 + c^2} \quad a = 12 \times \quad b = 16 \times \quad c = 21 \times \quad \begin{matrix} \downarrow \\ a = 1,2 \text{ dm} \quad b = 1,6 \text{ dm} \quad c = 2,1 \text{ dm} \end{matrix}$$

$$m_1 = \sqrt{144x^2 + 256x^2 + 441x^2} \Rightarrow m_1 = \sqrt{841x^2} \quad m_1 = 29x \Rightarrow x = \frac{2,9}{28} = 0,1 \text{ dm}$$