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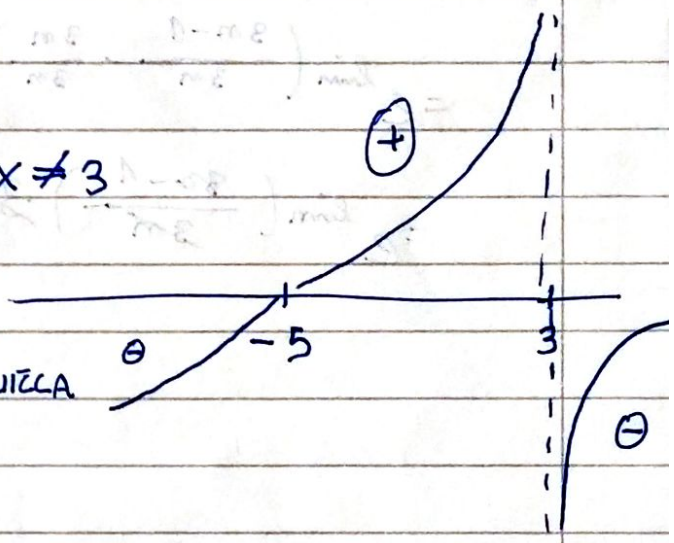
SKUPINA A

1.) $\frac{-x-5}{x-3} > 0 \qquad x \neq 3$

$-x-5=0$

$-x=5 \qquad x=-5$ NIČLA

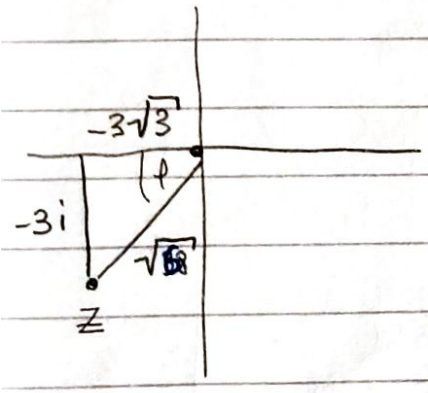


$x=-6 \Rightarrow$ $\frac{+}{-}$

$\frac{-x-5}{x-3} > 0 \iff x \in (-5,3)$

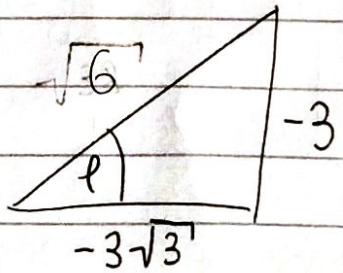
2.) $z = -3\sqrt{3} - 3i$

$|z| = \sqrt{(-3\sqrt{3})^2 + (-3)^2} = \sqrt{9 \cdot 3 + 9} = \sqrt{36} = 6$



$\sin\varphi = \frac{-3}{\sqrt{36}}$

$\cos\varphi = \frac{-3\sqrt{3}}{\sqrt{36}}$



$$z = \sqrt[6]{36}\left(\cos\frac{7\pi}{6} + i \cdot \sin\frac{7\pi}{6}\right)$$

$$z = e^{i\cdot\varphi} = e^{i\cdot\frac{7\pi}{6}}$$

$\cos\varphi = \frac{-3\sqrt{3}}{6} \qquad \varphi = \frac{7\pi}{6}$

$\sin\varphi = \frac{-3}{6} = \frac{-1}{2} \qquad \varphi = \frac{7\pi}{6}$

$\sin\varphi = \frac{-3}{-3\sqrt{3}}$

$\sin\varphi = \frac{\sqrt{3}}{3}$

$\varphi =$

3.) $\lim_{n\to\infty} \left(\frac{3n-1}{3n}\right)^{3n} =$

$= e^{\lim_{n\to\infty}\left(\frac{3n-1}{3n}-1\right)\cdot 3n} =$

$= e^{\lim\left(\frac{3n-1}{3n}-\frac{3n}{3n}\right)\cdot 3n} =$

$= e^{\lim\left(\frac{3n-1}{3n}\right)\cdot 3n} = e^{\lim(-1)}$

$= e^{-1}$