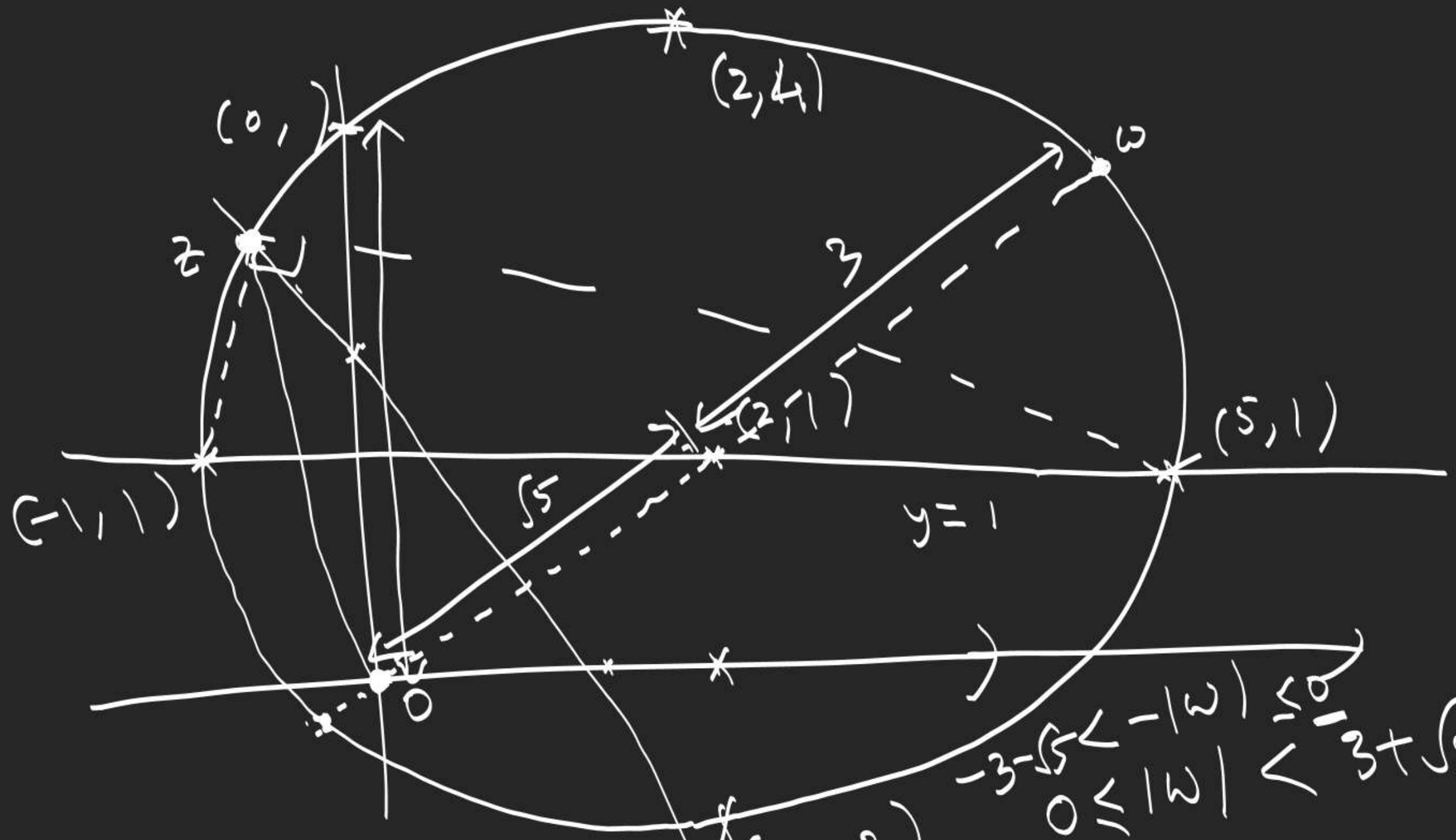
Nishant Jindal



$-3-\sqrt{5} < -|w| \leq 0$

$0 \leq |w| < 3+\sqrt{5}$

$3-\sqrt{5} \leq |z| \leq 3+\sqrt{5}$

$-3 < 3-2\sqrt{5} < |z|-|w|+3 \leq 3+3+\sqrt{5} < 9$

$< 1+\sqrt{5}+3$

$4+2.236 = 6.236$

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$|x|^2 = (a+b+c)(\bar{a}+\bar{b}+\bar{c})$

$|y|^2 = (a+b\omega+c\omega^2)(\bar{a}+\bar{b}\omega^2+\bar{c}\omega) =$ $< 90^\circ$

$z\bar{z} = (\quad)(\quad)$

$\frac{8t}{3(1-t^2)} + 1 \geq 0$

$t = 1$

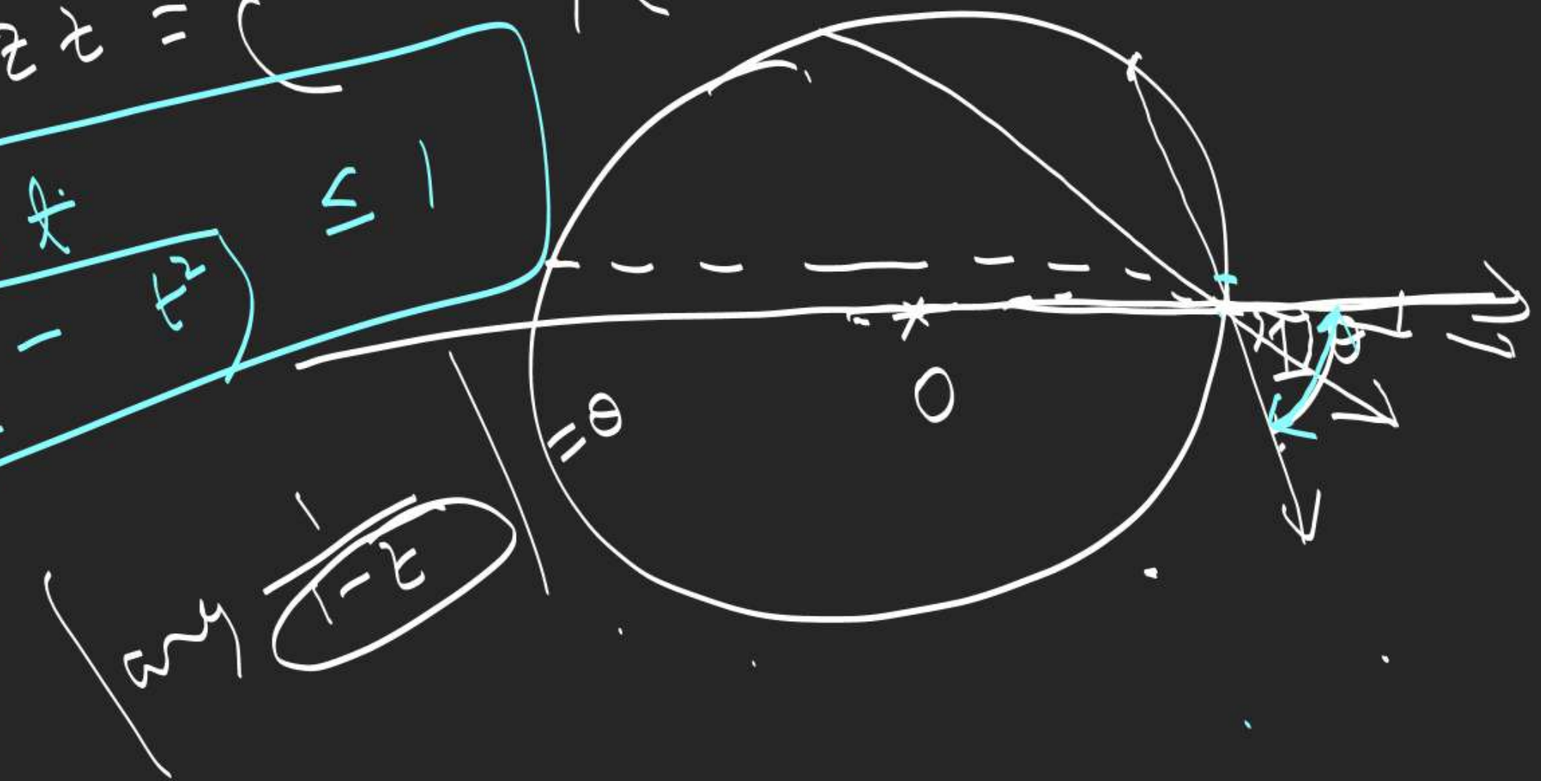
$-1 \leq \frac{8t}{3(1-t^2)} \leq 1$

$3u - 1 = t$

$\frac{1}{1-z}$

$=\theta$

0



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$$\frac{2i}{\frac{1}{z} - z} = \frac{2i}{\bar{z} - z} = \frac{2i}{-2i\,\mathrm{Im}(z)}$$

$$= -\frac{1}{\mathrm{Im}(z)}$$

$\in [-1, 1]$

$$(z-z_0)(\bar{z}-\bar{z}_0)=r^2$$

$$\frac{1}{\alpha}=\frac{\alpha}{|\alpha|^2}$$

$$(\alpha-z_0)(\bar{\alpha}-\bar{z}_0)=r^2 \Rightarrow |\alpha|^2-(\alpha\bar{z}_0+\bar{\alpha}z_0)+|z_0|^2=r^2 \quad (1)$$

$$(z-z_0)^2=4r^2 \Rightarrow \left(\frac{\alpha}{|\alpha|^2}-z_0\right)\left(\frac{\bar{\alpha}}{|\alpha|^2}-\bar{z}_0\right)=4r^2 \Rightarrow \frac{1}{|\alpha|^2}-\left(\frac{\bar{\alpha}z_0+\alpha\bar{z}_0}{|\alpha|^2}\right)+|z_0|^2=4r^2 \quad (2)$$

$$(1)-(2)\times|\alpha|^2$$

$$|\alpha|^2-1+|z_0|^2(1-|\alpha|^2)=r^2(1-4|\alpha|^2)$$

$$(|\alpha|^2-1)(1-|z_0|^2)=(2|z_0|^2-2)(1-4|\alpha|^2)$$

$$|\alpha|^2-1=2(4|\alpha|^2-1)$$