$$\arg\left(\frac{z-i}{z+i}\right) = \frac{\pi}{2} \qquad ((1.1)\ 6\ a)$$

$$w = \frac{z-i}{z+i}$$

$$\arg(w) = \frac{\pi}{2} \leadsto w = i b$$

$$\underline{b > 0}$$

$$\frac{z-i}{z+i} = (i b)$$

$$(z-i) = (i b)(z+i)$$

$$z(1 - i b) = (i - b)$$

$$z = \frac{(1 - i b)}{(i - b)} = \left(\frac{-i-b}{-i-b}\right) \cdot \left(\frac{1-ib}{i-b}\right)$$

$$= \frac{-i - b - b + i b^2}{(1+b^2)} \quad (\text{s.n.p.})$$

$$* \quad = \underline{\frac{-2b}{(1+b^2)} + i\left(\frac{-1+b^2}{1+b^2}\right)} \ ?? \in B_1(0)$$

$b > 0$

No idea about curve in $\mathbb{C}$?

$$\boxed{z = x + iy}$$

$$\frac{z-i}{z+i} = \frac{x+iy-i}{x+iy+i}$$

$$\left(\frac{x+i(y-1)}{x+i(y+1)}\right) \cdot \left(\frac{x-i(y+1)}{x-i(y+1)}\right) =$$

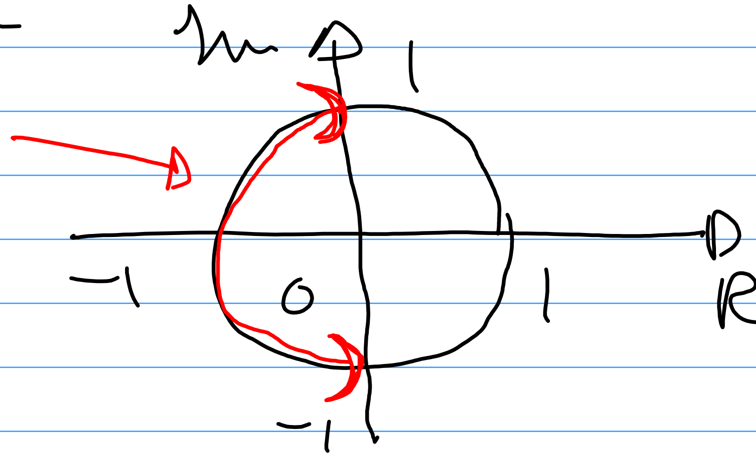
$$\left(\frac{x^2 - i\cdot x\cdot(y+1) + i(y-1)\cdot x + (y-1)(y+1)}{(x^2+(y+1)^2)}\right)$$

$$\arg\left(\frac{(x^2+y^2-1)+i(-x-x)}{x^2+(y+1)^2}\right)$$

$$= \frac{\pi}{2}$$

(s.n.p.)

$$\begin{cases} (x^2+y^2-1)=0 \\ -2x>0 \quad \Rightarrow \quad \underline{x<0} \end{cases}$$



$\boxtimes$

!! see * above

$$\frac{4t^2}{(1+t^2)^2}+\frac{(-1+t^2)^2}{(1+t^2)^2}$$

$$4t^2+1-2t^2+t^4=$$

$$t^4+2t^2+1=\underline{\underline{(t^2+1)^2}}$$

$\Rightarrow$ numerator

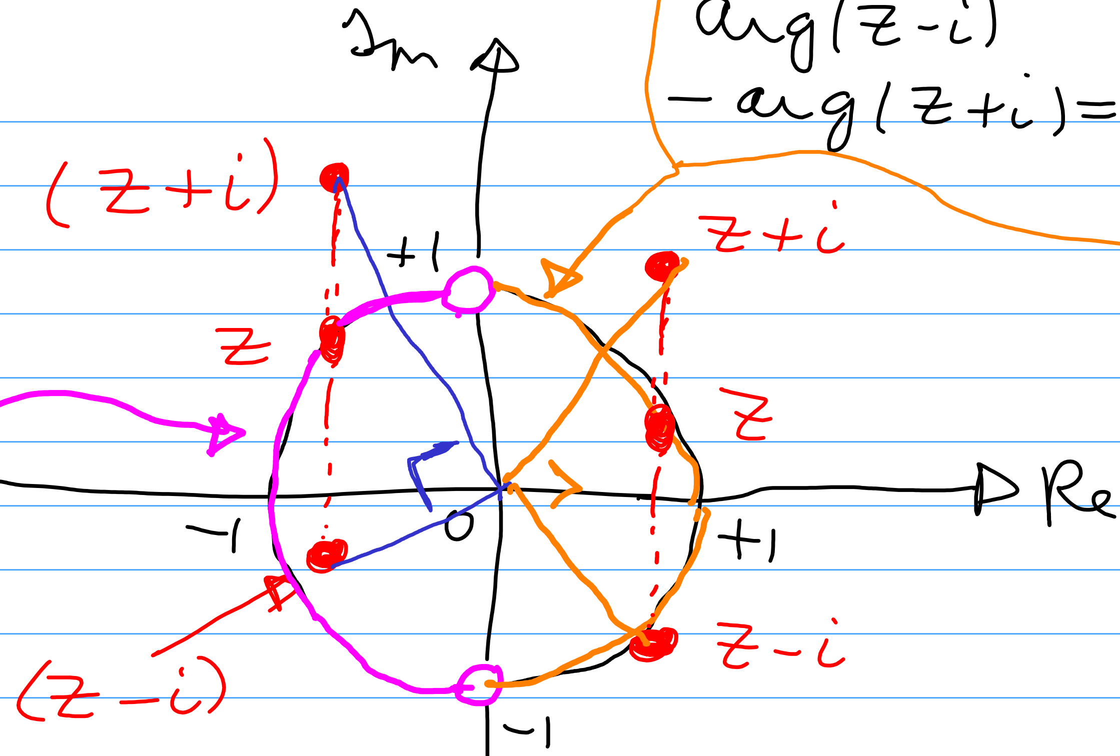
indeed the unit circle !!

and $Re(z)<0$ $\boxtimes$

(s.n.p.)

$$\arg(z-i) - \arg(z+i) = -\frac{\pi}{2}$$

!



$$\arg(z-i) - \arg(z+i) = \frac{\pi}{2}$$

if $z = \cos(a) + i\sin(a)$ then numerator of $\frac{z-i}{z+i}$ equals

$$(z-i)\overline{(z+i)} = -2i \cdot \cos(a)$$