Assignment-1 Sec - 7 J. Sint dis = 2 estanc. Just de - 1

(a)
$$\begin{vmatrix} 2z-3 \\ 2z+3 \end{vmatrix} = 1$$

$$\Rightarrow |2z-3| - |2z+3|$$

$$\Rightarrow |2(n+iy)-3| = |2(n+iy)+3|$$

$$\Rightarrow |2n+2iy-3| = |2n+2iy+3|$$

$$\Rightarrow (2n-3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} = \sqrt{(2n+3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}}}$$

$$\Rightarrow (2n-3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}}$$

$$\Rightarrow (4n^{\frac{1}{2}} - 12n + 9 + 4y)^{\frac{1}{2}} = 4n^{\frac{1}{2}} + 12n + 9 + 4y$$

$$\Rightarrow -12n = 12n$$

$$\Rightarrow -24n = 0$$
(2n-3)
$$\Rightarrow -24n = 0$$
(2n-3)
$$\Rightarrow (2n-3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}}$$

$$\Rightarrow (2n-3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} + (2y)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} = (2n+3)^{\frac{1}{2}} = (2n$$

$$2\bar{z}+5 \Rightarrow 2(n-iy)+5 \Rightarrow 2n-2iy+5$$

$$22 + 5 \Rightarrow 2(n+iy) + 5 \Rightarrow 2n + 2iy + 5$$

Thenefore,

Since the magnitude of atbi is the same as the magnitude of its complex conjugate a-bi, 12n+2iy+51 = 12n-2iy+511.10111 + 122+51 = 122+51 - 10 (11-10 C) CIR 50, |(21+5)(12-i)1= 13/22+5/00 < 2100 131- 115 - 121 5 12 + 55 (Priored) 22+5 -> 2(M+in))+5 -> 2x+2in)+5 121- (21 - 121 - 121) - 151 110 milhade of (12-i): Ex - 11-501

12-2+5/12-11=1,3.192-5

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3. Prove that |2-i| = |2+i| nepresents a straight
 line.
                                 in the second second
> |2-il = |2+i|
-) | n + iy -il - | x + iy + i |
                                     ( 25 ) Mat 3
-> [n+ 1(y-1)] - In+i(y+1)]
> Jx+ + (y-1) - Jx+ (y+1)-
> x+ (y-1) = x+ (y+1)
> x+ y= 25+11= - x+ y= +(2y+) (1) (101-):
             · 2 [ 00 ] [ ] + | [ ] + | [ ] + | [ ] + |
  -24 - 250 1 15 Jaisi + (NUPLAS) (00) 5.
K-6. 2=2 (cs (3)+isin (3) = 0.1650=1. 245
This nephresents arthonizontal line on the
complex plane : 13 Amiliei + (1.8.15 + xx) (0) [ - E , S ->
       <-3, Z = Z [cos (3x + (1.3.11) + isin (3x + (1.3.11))]
      1224-0-2121 6
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$$\begin{array}{l}
\left(\frac{3\pi}{8}\right) = -16i \\
- (0 - 16i)^{1/4} \\
7x = 0, \quad y = -16
\end{array}$$

$$\begin{array}{l}
\left(\frac{7}{8}\right) = -\frac{\pi}{2} \\
- 2\pi - \left|\frac{\pi}{2}\right| \\
= 2\pi - \left|\frac{\pi}{2}\right| \\
= 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right)\right] \\
= 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right)\right] \\
= 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right)\right] \\
= 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right)\right] \\
= 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{2}\right) + i\sin\left(\frac{3\pi}{8}\right)\right] \Rightarrow 0.765 + 1.848i \\
\kappa = 1, \quad z = 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right) + i\sin\left(\frac{3\pi}{8}\right)\right] \Rightarrow -1.85 + 0.765i \\
\kappa = 2, \quad z = 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right)\right] \Rightarrow -0.765 - 1.848i \\
\kappa = 3, \quad z = 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right)\right] \Rightarrow -0.765 - 1.848i \\
\kappa = 3, \quad z = 2\left[\cos\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right) + i\sin\left(\frac{3\pi}{8} + \frac{\kappa_{1}}{8}\right)\right]
\end{array}$$

(Ang

Scanned with CamScanner

→ 1.848 - 0.765i