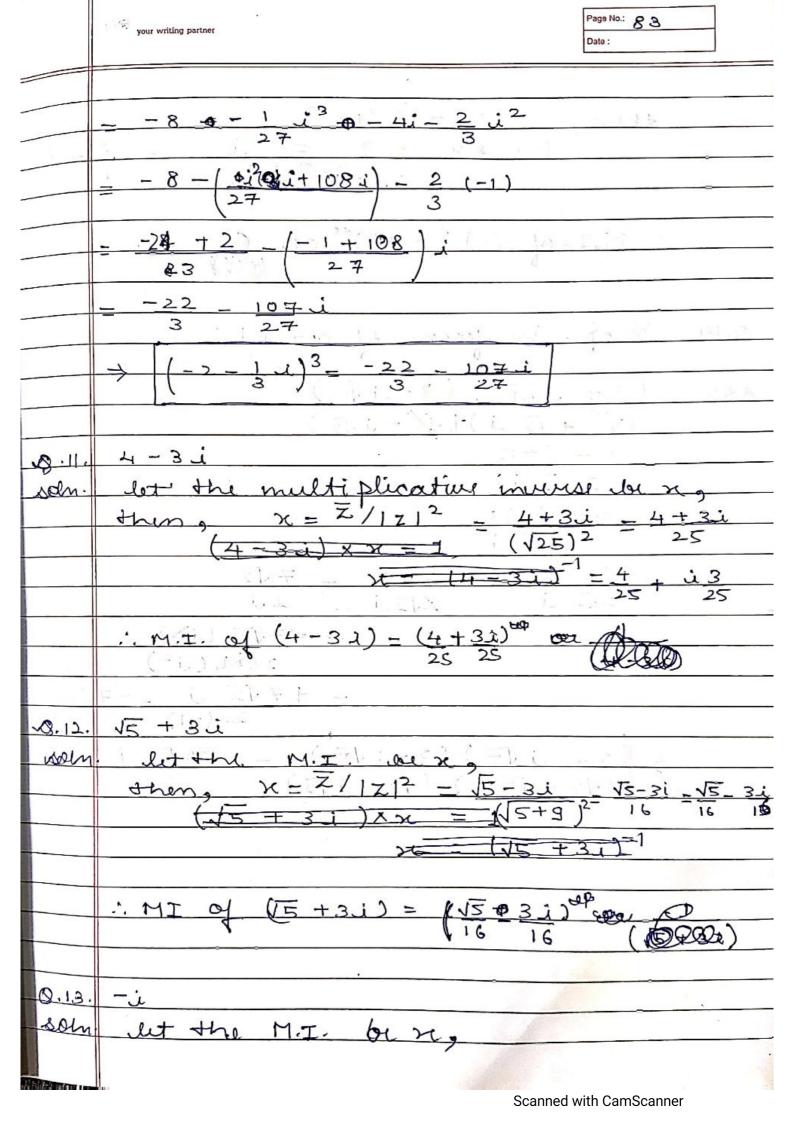
14 + 208 i 28

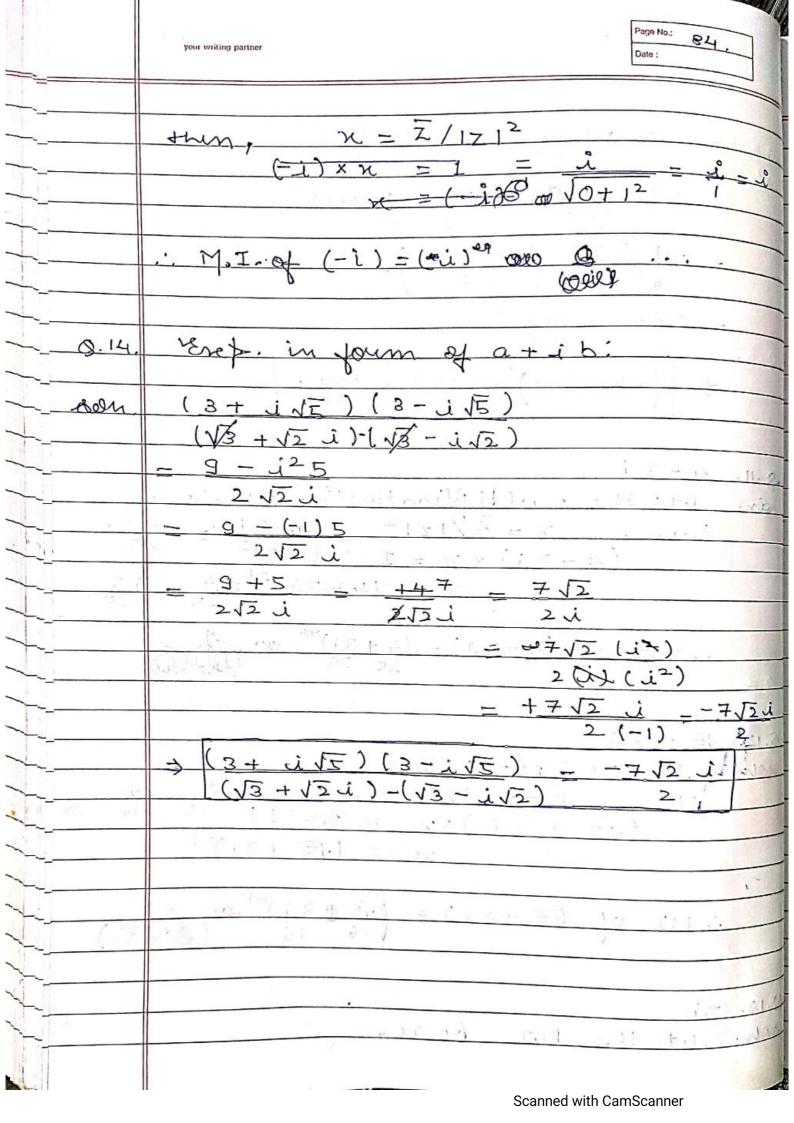
your writing partner

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	your writing partner	
		/
1.00	$(1-i)^{2}$	/
- woh.	$=((1-i)^2)^2$	2
	(12 12	VA
	$= (1 + u^{2} - 2i)^{2}$ $= (1 + (-1) + 2i)^{2}$	-
	$= (2i)^{2} = 4i^{2}$	1
	$= 4 \times (-1) = -4$	
	$\Rightarrow (\mathbf{I} - \hat{\mathbf{i}})^4 = -4 + \mathbf{i} 0$	
	7 3 3	Car
2.9.	$\left(\frac{1}{3}+3.i\right)^3$	
	(a)	
woh	$(1/2 + 3i)^3$	
	$= \frac{1}{27} + 27i^{3} + 2x \frac{1}{3}Ri(\frac{1}{3} + 3i)$	
	21	
	$\frac{-1}{27} + 27i^3 + i + 9i^2$	
	2+ (1 is \ in (0: 1 1)	
	$\frac{-1}{27} + 27 i (-1) + i + 9 (-1)$	
	27 27-1 + 1 - 9	1
	-242 + i(-26)	
	27	IN
<u></u>	$\Rightarrow (1+3i)^3242, 3(-26)$	
	$\Rightarrow \frac{1}{3} + 3 = \frac{-242}{27} + 2(-26)$	
_ <u>_</u>		
<u> 8.10.</u>	$(-2-1/i)^3$	-
7-	3 /	
som.	$\left(-2!-\frac{1}{3}i\right)^3$	
	$-(-2)^{2}+(-1i)^{3}+xx(-2)x(-1i)$	24
		_





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EXERCISE:-5.Z

A.L. Z= -1 - i Va

 $solm. |Z| = \sqrt{a^2 + b^2}$

a = -1 , b = - N3

 $=\sqrt{(-1)^2+(-\sqrt{3})^2}$

 $=\sqrt{1+3} = \sqrt{4} = 2$

 \Rightarrow |z| = 2

~ ~ . •

40m. $|Z| = \sqrt{(-\sqrt{3})^2 + 1^2}$

= 1/3+1

 $= \frac{1}{\sqrt{4}} \sqrt{4} = 2$

№3. 1- ž

 $50m. \quad z = 1-i \dots (i). \quad \alpha = 1 \quad b = -1$

 $8 = \sqrt{(1)^2 + (-1)^2} = \sqrt{1+1} = \sqrt{2}$

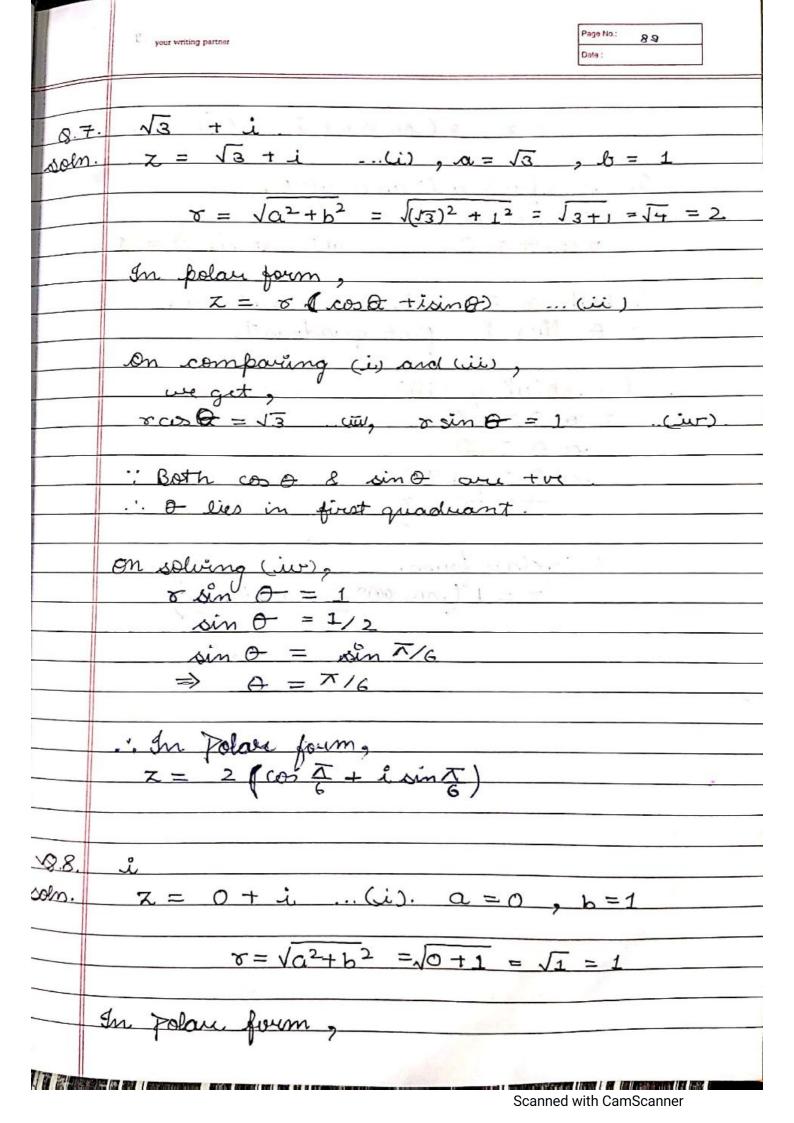
=> 8= 42

In polar form > Z = & (coso +isin 0) . (i) on comparing (i) & (ii).

we get

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	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	m D = -1. (iv)
1	1 cos 0 = 1+0.10/(iii). 8 mi	
	- ve	
	: cos O is the & sin O is -ve.	- 1 = 1
	O lies in 4th quadrant.	. 176
1	.01.	-
	source (m),	19
	₹ cw Ø = 1	1.1 4
	$\cos \Theta = \frac{1}{\sqrt{2}}$	121
	$(60 + 5^{\circ} = 1/\sqrt{2})$	
	$\frac{-(1) 45^{\circ} = -1\sqrt{2}}{\Rightarrow} \Rightarrow = -45^{\circ} \text{or} -\overline{\Lambda}$	
	$\Rightarrow \Theta = -45^{\circ} \text{ou} -\overline{\Lambda}$	
	7 7	7
	in tolar burne to the (E)	- 1 1 1 M
	in folar form, $Z = \sqrt{2} \left(\frac{-\Delta}{4} + i \sin \frac{-\Delta}{4} \right)$	-)
1	4	† /
1		1
₩.4	1 + i	18
soh		a=-1, d=1
	$x = \sqrt{a^2 + b^2} = \sqrt{1 + 1} = \sqrt{2}$	
<u> </u>		, f -1 .c. 2
	In polare form,	1 =
	$z = v(xos \theta + i sin \theta)$	(2)
	on comparing (1) & (2),	
	on comparing (1) & (2), we get,	
7	v cos θ = -1 (3) x	in 0 = 1 -(4)
)		No. 1
<u></u>	: coso is - ve & sin o is + ve	
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Z = 83 (cos \$ + i sing)



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1			7
±X1	TCISE	:- ()	-17
			~

 $x_2 + 3 = 0$

 $n^2 + 3 = 0$

 $\kappa^2 = -3$

x = \-3 => x = 6 + 13 i

8.2. $2x^2 + x + 1 = 0$

 $2x^2 + x + 1 = 0$

By the quadratic formula (for (b2-4ac)<0),

we get,

 $x = -b \pm \sqrt{40c - b^2}$ i

2 a

 $-100 \pm \sqrt{4x2x1-1^2}$ i

20

= -1 ± \f

20

 $x^2 + 3x + 9 = 0$

som

 $x^2 + 3x + 9 = 0$

By the quadratio formula,

x = -3 + 100 en 4 x 1x 9 - 32 i

2 × 1

_1-3± \27 i

2

= -3 ± 3/3 i

2

DA -x2+ 8x 2000-2=0

 $-x^2 + x - 2 = 0$

By the quadratic formulas

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$$\chi = -1 \pm \sqrt{4 \times (-1) \times (-2) - (-1)^2}$$
 i $-2 \times (-1)$

$$= -1 \pm \sqrt{8-1} i$$

$$0.5. \quad \chi^2 + 3\chi + 5 = 0$$

$$x^2 + 3x + 5 = 0$$

By the quadratic formula,
$$x = -3 \pm \sqrt{4 \times 1 \times 5} - (3)^{2}$$
 i

$$\sqrt{2.6.}$$
 $x^2 - x + 2 = 0$

soln.
$$x^2 - x + 2 = 0$$

$$0.7.$$
 $\sqrt{2} \times^2 + \times + \sqrt{2} = 0$

$$4m.$$
 $\sqrt{2}$ χ^{2} + χ + $\sqrt{2}$ = $\sqrt{2}$

