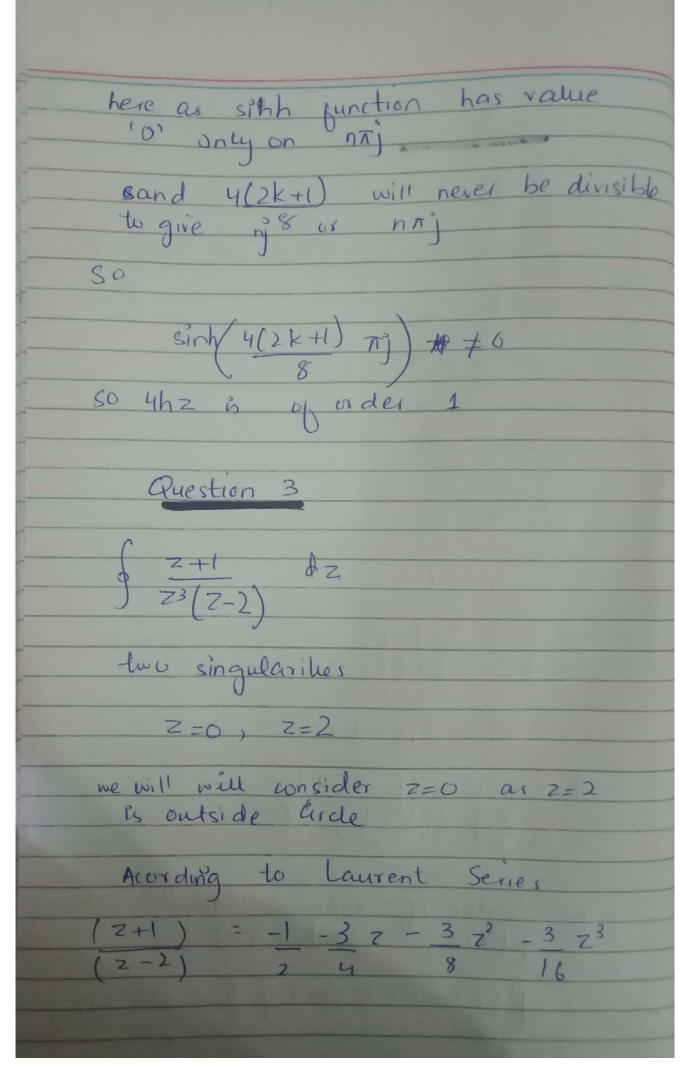
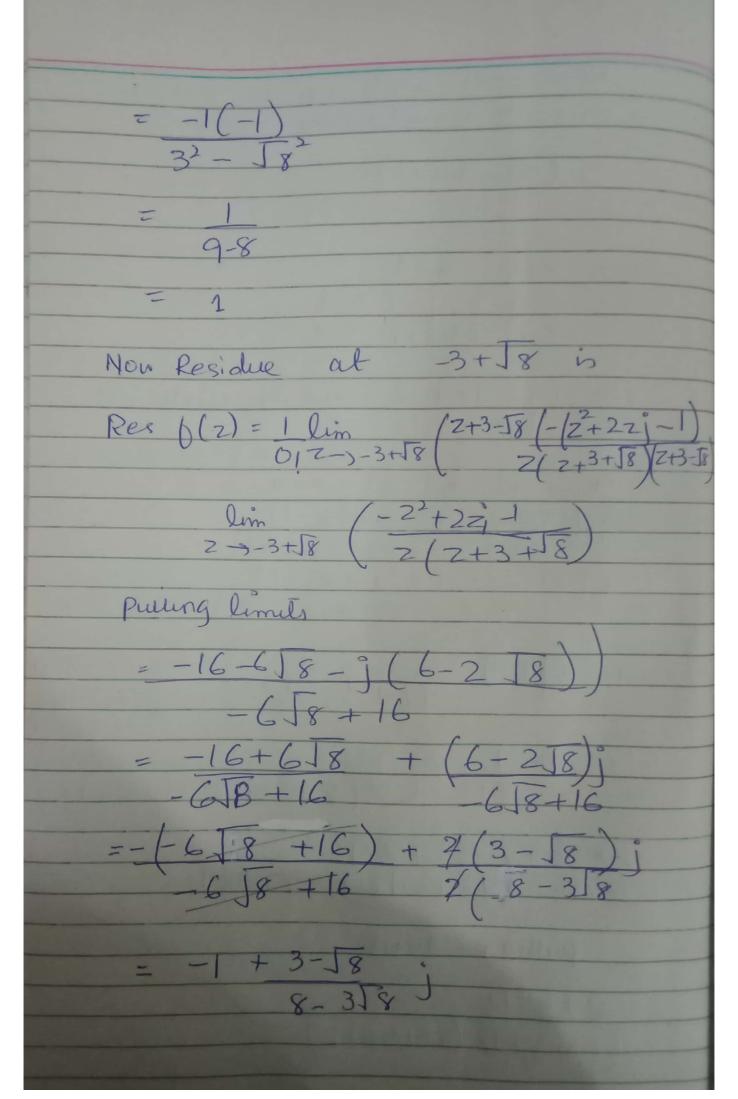
Question 1 Soll- As -ri is singularity So here g(z) = coshz g(Z) = cosh(-Ti) = -1 g'(z) = sinh(-ni) =0 g"(z) = cosh(- Ti) = -1 gu (z) = sinh(-ti)=0 g"(z) = cos(-Ti)=-1 $\frac{1}{2+\pi i} \left[\frac{2+\pi i}{2} \right] = \frac{1}{(2+\pi i)^2} \left[\frac{-1-1}{2} \left(\frac{2+\pi i}{2} \right)^2 \right] = \frac{1}{2+\pi i} \left[\frac{-1}{2} \left(\frac{2+\pi i}{2} \right)^4 \right]$ $\frac{-1}{(z+\kappa_j)^2} = \frac{-1}{2} \left(\frac{z+\kappa_j}{z+\kappa_j}\right)^2 \cdots$ $\frac{\text{coshz}}{2+\pi j} = \frac{-1}{2+\pi j} - \frac{1}{2} - \frac{1}{2+\pi j}^2$

Question 2 cosh 42 for zeros of A(z) we take (2)=0 Cosh42=0 e4z + e4z = 0 e42+e42=0 esz +1=0 e8z = -1 => 8Z = 2n(-1) 8Z = 2n(1) + j(7+2k7)8 Z = ti(2k+1) Thus zeros of cosh4z are bos order of zero we have bi(z) = 4sinh (4z) 1'(z) = 4 sinh (4 T (2k+1)))



here cis unit vicle (z1=1) Thus 3 singularities pormed.
$\frac{2(z^{2}+6z+1)=0}{z=0, z=-3\pm \sqrt{8}}$
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
as (-3-18) is out of wide, it
Now Resedue at $z=0$ $b(z) = -(z^2 + 2zj - 1)$ $z(2^2 + 6z + 1)$ $b(z) = (z^2 + 2zj - 1)$ $z(7+3+\sqrt{8})(2+3-\sqrt{8})$
Res ($\int_{0}^{1}(z)$) = $\int_{0}^{1} dz^{-1} \left[z^{-0} \left[-z^{2} + 2z^{-1} \right] \right] \left[z^{-1} \left[z^{-1} + 3z^{-1} \right] \right] \left[z^{-1} + 3z^{-1} \right]$
$= \lim_{z \to 0} (-z^2 + 2zj-1)$ $= \lim_{z \to 0} (z+3+\sqrt{8})(z+3-\sqrt{8})$ pulling limits $= (5+6-1)$
(0+3+18)(0+3-18)



Res =
$$-1 - J2$$
)

Res $\int (z) = Res \int (z) + Res \int (z)$
 $= -1 - 1 - J2$

Res $\int (z) = -\frac{1}{2}$

Now $\int |tsin 0| = 2\pi j b$
 $= -J2\pi j^2$
 $\int (z) = -J2\pi j^2$
 $\int (z)$

Res (2) = 1 4e ⁶ T)
$\frac{1}{4e^{2\pi j}}$ Res $f(z) = 1e^{-2\pi j}$ $\frac{1}{2i-2}$
$\begin{cases} \cos z = 2z \\ -\cos f(z) = \begin{bmatrix} 1 \\ 4z^3 \end{bmatrix} z = 202z. \end{cases}$
- (enj)3 - 1 (enj)3 - 1 (enj)
$= \frac{1}{4} e^{-\frac{1}{3}x}$
$= 2\pi J \left(2e^{-2\pi J}\right)$ $= \pi J e^{-2\pi J}$
$\int_{\lambda^4 + 16}^{\infty} \frac{dx}{e^{-2\pi j}} = \frac{\pi j}{e^{-2\pi j}}$

Question#6
$\chi_{1=0} \qquad \chi_{2=10}$
T1 = 100 deg T2 = 0 deg
By Laplace Eq.
$\frac{\partial \varphi}{\partial x^2} + \frac{\partial \varphi}{\partial y^2} = 0$
as it doest depend on y.
$\frac{\partial \Phi}{\partial x^2} = 0$
$\frac{d^2Q}{dx^2} = 0$
Integrating
$\frac{dO}{dx} = A$
$\frac{dO}{dx} = A$
Q = Ax + B
at 11=0, T=100
100 = B

