

$$\frac{1}{2n}\int_{-a}^{0}(a+x)e^{-i\omega x}dx + \frac{1}{2n}\int_{0}^{a}(a-x)e^{-i\omega x}dx$$

Integrating the above terms,

$$\frac{1}{2\pi} \left\{ \left[ (a+x) \frac{e^{-iwx}}{-iw} - \frac{e^{-iwx}}{(-iw)^2} \right] - a \right\}$$

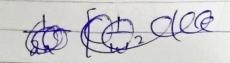
$$\left[\begin{array}{ccc} (a-x) & e^{-iwx} & + & e^{-iwx} \\ \hline -iw & & (-iw)^2 \end{array}\right] 0$$

$$\frac{1}{2\pi} \left\{ \frac{a}{-i\omega} - \frac{1}{\omega^2} - 0 + \frac{e^{ia\omega}}{\omega^2} + 0 + \frac{e^{-i\omega q}}{(-i\omega)^2} - \frac{a}{(-i\omega)^2} \right\}$$

$$= \frac{1}{2\pi} \left\{ \frac{a}{-i\omega} - \frac{1}{\omega^2} - 0 + \frac{1}{2\omega} + 0 + \frac{1}{2\omega} \right\}$$

$$= \frac{1}{2\pi} \left\{ \frac{a}{-i\omega} - \frac{1}{\omega^2} + \frac{1}{2\omega} \right\}$$

$$= \frac{1}{2\pi} \left\{ \frac{1}{\omega^2} \left\{ -2 + e^{ia\omega} + e^{-i\omega a} \right\} \right\}$$



1 5 1 5 - 7 + eiaw + e-iwa }

daw? { -2 + eiaw + eiwa }

1 2 5 - 1 + cosaw }

=) <u>cos aw -1</u> nw<sup>2</sup>

 $\frac{1}{3}(\omega) = \frac{\cos \alpha \omega - 1}{\lambda \omega^2} \left( -\frac{\lambda \omega}{\lambda} \right),$ 



Q2

f(x) = K

Journ'en transform of Jax) = 1x = const

for Jourille cosine transform,

of [f(x)] = loo f(x) (as x x dx

= JOO K COSATE DX

 $= \left[ \begin{array}{c} \kappa \left[ \sin \alpha \kappa \right] \infty \\ \alpha \end{array} \right]$ 

in sinera does not exist, so this

: jourier cosine transform doesn't exist