

FOURIER ANALYSIS

Find the Fourier transforms of the distributions

① $\operatorname{sign}(x)$,

② $|x|$,

③ Prime. value $(\frac{1}{x})$.

④ Ch. 5/3

⑤ Ch. 4/3

⑥ Determine $\frac{d}{dx} \log(|x|)$, $-\infty < x < \infty$,
in the sense of distributions.

⑦ $\mathcal{D}' \frac{1}{2\pi} \sum_{n=-\infty}^{\infty} e^{inx} = \sum_{n=-\infty}^{\infty} \delta(x - 2n\pi)$?