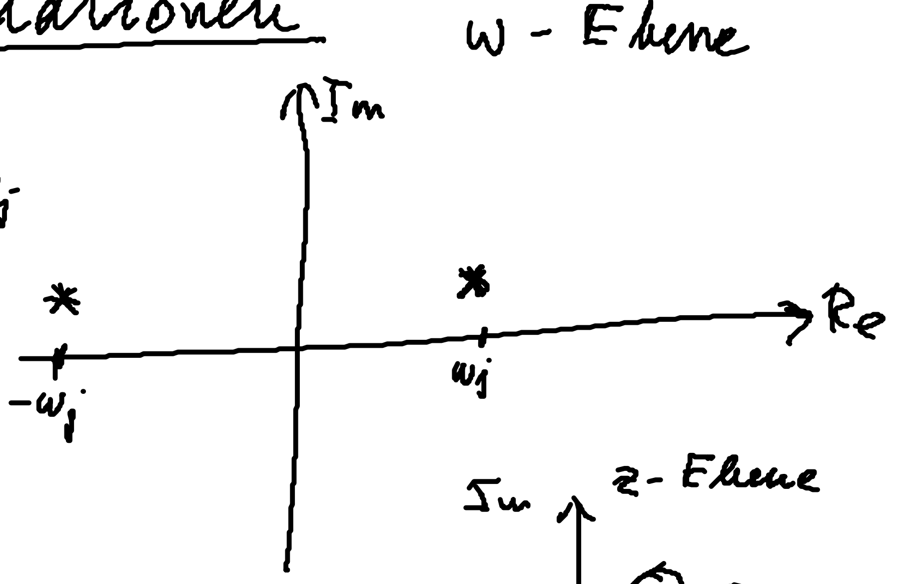
3.3 Dispersionsrelationen

$$\omega = \pm \omega_j \sqrt{1-\left(\frac{\gamma_j}{2\omega_j}\right)^2} + i\frac{1}{2}\gamma_j$$



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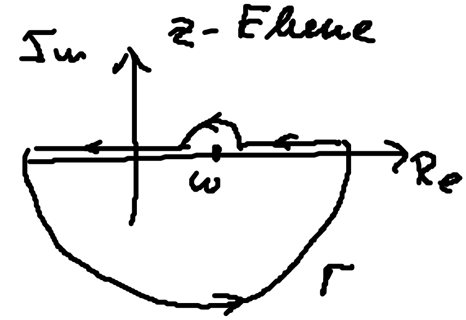
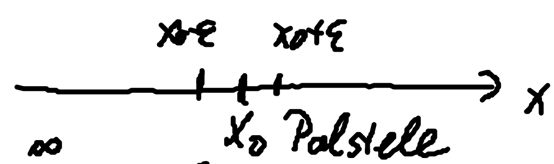
$$|\omega f(\omega)| \xrightarrow[|\omega|\to\infty]{} 0$$

$$f(\omega) = \frac{1}{2\pi i} \int_\Gamma \frac{dz\, f(z)}{z-\omega}$$



$$f(\omega) = \int \dots = \int \dots + \frac{1}{2}\int \dots = -P\int_{-\infty}^{\infty} + \frac{1}{2} f(\omega) \implies f(\omega) = -2P\int_{-\infty}^{+\infty} \dots$$

$$P\int_0^\infty f(x)\,dx =$$



$$= \lim_{\varepsilon\to 0}\left[\int_0^{x_0-\varepsilon} f(x)\,dx + \int_{x_0+\varepsilon}^{\infty} f(x)\,dx\right]$$

$$0 = a_1 \exp\{i\omega_1 t\} + a_2 \exp\{i\omega_3 t\}$$

$$\implies a_1 = 0 \wedge a_2 = 0$$