

1.1 Lmodern

THEOREM 1.1—RESIDUE THEOREM

Let f be analytic in the region G except for the isolated singularities a_1, a_2, \dots, a_m . If γ is a closed rectifiable curve in G which does not pass through any of the points a_k and if $\gamma \approx 0$ in G then

$$\operatorname{Res}_{z=a} f(z) = \operatorname{Res}_a f = \frac{1}{2\pi i} \int_C f(z) dz = \frac{1}{2\pi i} \int_\gamma f = \sum_{k=1}^m n(\gamma; a_k) \operatorname{Res}(f; a_k)$$

where $C \subset D \setminus \{a\}$ is a closed line $n(C, a) = 1$ (e. g. a counterclockwise circle loop). \square

Some bold math

If the radio channel is modeled as an LTV system, the observed noisy signal $\mathbf{y}(t)$ will be

$$\mathbf{y}(t) = \int_0^\infty \mathbf{H}(t, \tau) \mathbf{u}(t - \tau) d\tau + \mathbf{e}(t), \quad (1.1)$$

where t is the time when the receive antenna observes the signal, τ is the time delay in the channel, and $\mathbf{e}(t) \sim \mathcal{CN}(0, \Sigma)$ is additive zero mean circular symmetric complex Gaussian noise with a positive definite covariance matrix $\Sigma \in \mathbb{R}^{n_x \times n_x}$. The probability density function of the distribution is given by

$$\mathcal{CN}(\mathbf{x} | \mathbf{m}, \Sigma) = \frac{1}{\pi^{n_x} |\Sigma|} \exp\{-\mathbf{x} - \mathbf{m} \}^* \Sigma^{-1} (\mathbf{x} - \mathbf{m})\}, \quad (1.2)$$

where $\mathbf{m} \in \mathbb{C}^{n_x}$ denotes the mean, $\mathbf{x} \in \mathbb{C}^{n_x}$ denotes the random variable, $(\cdot)^*$ denotes Hermitian transpose, and $|\cdot|$ denotes determinant.

Verbatim and ttfont

aacceemmn

The quick **brown fox jumps** over the lazy dog. "12345"

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$$\begin{aligned} & \operatorname{Res}_{z=a} f(z) = \\ & \operatorname{Res}_a f \\ & = \frac{1}{2\pi i} \int_C f(z) dz = \\ & \frac{1}{2\pi i} \int_\gamma f = \\ & \sum_{k=1}^m n(\gamma; a_k) \operatorname{Res}(f; a_k) \end{aligned}$$

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Svenska

Gud hjälpe Zorns mö qvickt få byxa.