

**Other Transform Pairs**

三角形底到，高

**Hilbert Transform**

**Quick Reference Checklist快速检查单**

|  |  |  |  |
| --- | --- | --- | --- |
| **Signal** | **Transform** | **ROC** | **Pole** |
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**和差化积公式与积化和差公式**

**Even and odd decomposition**

奇分解围绕原点旋转除2，偶分解围绕y轴变换除2

**等比数列**

通项公式：

两项关系：

求和公式：

**Sinc Function**

**Laplace Transform拉普拉斯变换**

**时域频域卷积相乘关系**

**Fourier Series傅里叶级数**

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**采样与恢复的过程**

采样后信号的频率响应幅值变为倍，因此恢复信号时要通过一个增益为的BPF，BPF的截止频率最好为

**Z变换特殊峰的判断**

信号为正，零点有峰

信号为负，无穷有峰

**Nyquist Sampling Theorem**

Let be a band-limited signal within , then is uniquely determined by its samples if , where .

Nyquist rate:

**Convolution卷积**

一个函数的换成，另一个函数的换成；如果结果以原点为界，记得写成的形式；的图像正常，的图像关于轴翻转后，原点为

**Euler’s formula欧拉公式**

**诱导公式**

**Z-Transform Z变换**

**Fourier Transform傅里叶变换**

**System Properties (Laplace Transform)**

|  |  |
| --- | --- |
| Causality | ROC is a right-half plane |
| Causality  (Rational ) | ROC is the right-half plane to the right of the rightmost pole |
| Anticausality | ROC is a left-half plane (to the left of the leftmost pole) |
| Stability | ROC includes the entire-axis |

Causal LTI system with rational: all poles lie in the left-half of the s-plane

**System Properties (Z-Transform)**

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| --- | --- |
| Causality | ROC is the exterior of a circle including infinity |
| Causality  (Rational ) | ROC is the exterior of a circle outside the outermost pole + 分子z阶数不能比分母大 |
| Stability | ROC includes the unit circle |

Causal LTI system with rational: all poles lies inside the unit circle + 分子z阶数不能比分母大

**Basic BD Pairs**

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