

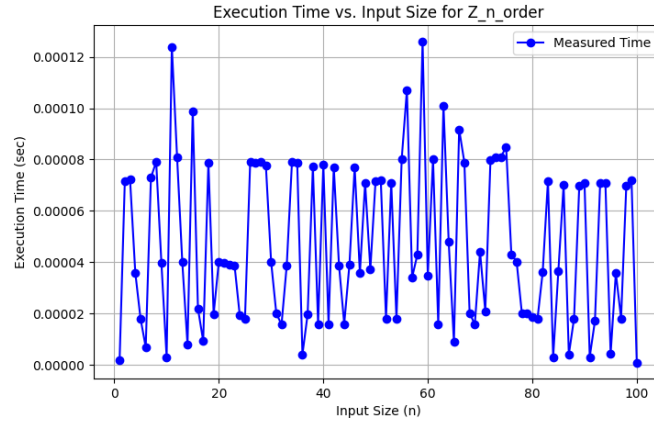
# Singleton Structures Complexity Analysis Report

## Complexity Analysis for Z\_n\_order

Best Fit Complexity: Constant: time = 0.00039 (sec)

Detailed Fit Residuals: | Complexity Class | Residual | |-----|  
-----| | Constant: time = 0.00039 (sec) | 7.7E-07 | | Linear: time = 0.00042 +  
-6.4E-07n (sec) | 7.7E-07 | | Quadratic: time = 0.00044 + -1.4E-08n<sup>2</sup> (sec) |  
7.5E-07 | | Cubic: time = 0.00044 + -1.8E-10n<sup>3</sup> (sec) | 7.4E-07 | | Polynomial:  
time = 4.9E-05 x<sup>0.42</sup> (sec) | 1E-06 | | Logarithmic: time = 0.00023 + 4.7E-  
05log(n) (sec) | 7.3E-07 | | Linearithmic: time = 0.00043 + -2E-07nlog(n) (sec)  
| 7.6E-07 | | Exponential: time = 0.00023 1<sup>n</sup> (sec) | 1.1E-06 |

Execution Time vs. Input Size Plot:

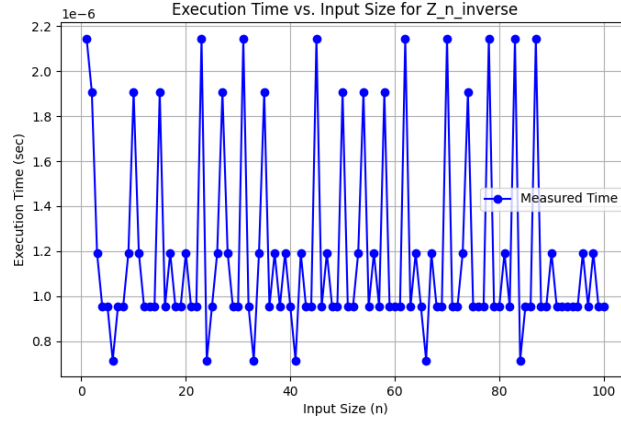


## Complexity Analysis for Z\_n\_inverse

Best Fit Complexity: Constant: time = 1E-05 (sec)

Detailed Fit Residuals: | Complexity Class | Residual | |-----|  
-----| | Constant: time = 1E-05 (sec) | 2.7E-11 | | Linear: time = 1.2E-05 +  
-3.5E-08n (sec) | 1.5E-11 | | Quadratic: time = 1.1E-05 + -2.7E-10n<sup>2</sup> (sec) |  
1.9E-11 | | Cubic: time = 1.1E-05 + -2.4E-12n<sup>3</sup> (sec) | 2.1E-11 | | Polynomial:  
time = 1.4E-05 x<sup>-0.096</sup> (sec) | 5.5E-12 | | Logarithmic: time = 1.4E-05 + -1.1E-  
06log(n) (sec) | 5.8E-12 | | Linearithmic: time = 1.2E-05 + -6.9E-09nlog(n)  
(sec) | 1.6E-11 | | Exponential: time = 1.2E-05 1<sup>n</sup> (sec) | 1.4E-11 |

Execution Time vs. Input Size Plot:



## Complexity Analysis for $Z_n\_legendre$

**Best Fit Complexity:** Constant: time =  $9.6E-05$  (sec)

**Detailed Fit Residuals:** | Complexity Class | Residual | |  
 ————| | Constant: time =  $9.6E-05$  (sec) |  $1.5E-09$  | | Linear: time =  $0.00011 + -2.1E-10n$  (sec) |  $8.6E-10$  | | Quadratic: time =  $0.0001 + -1.1E-15n^2$  (sec) |  $1.2E-09$  | | Cubic: time =  $0.0001 + -7.6E-21n^3$  (sec) |  $1.3E-09$  | | Polynomial: time =  $0.00013x^{-0.033}$  (sec) |  $8.6E-11$  | | Logarithmic: time =  $0.00013 + -3.6E-06\log(n)$  (sec) |  $7.8E-11$  | | Linearithmic: time =  $0.00011 + -1.7E-11\ln\log(n)$  (sec) |  $9.1E-10$  | | Exponential: time =  $0.00011 \cdot 1^n$  (sec) |  $8.4E-10$  |

**Execution Time vs. Input Size Plot:**

