

數值方法 HW02

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分析

- 驗證
 - 每筆資料的誤差接趨近於 0
- 所需時間

n	time
2	0.000000000000000000000000 sec
3	0.000000000000000000000000 sec
4	0.000000000000000000000000 sec
10	0.0009999275207519531250000 sec
100	0.0020000934600830078125000 sec
500	0.0150034427642822265625000 sec
1000	0.0270063877105712890625000 sec
5000	0.6751527786254882812500000 sec
10000	4.1579332351684570312500000 sec

測資 (隨機生成)

由於版面關係 只列出前幾筆

$n = 2$

func:

$$0.742483X_0 + 0.079539X_1 = 0.370161$$
$$0.735421X_0 + 0.799160X_1 = 0.417509$$

ans:

$$X_0 = 0.490979, X_1 = 0.070615$$

$$n = 3$$

func:

$$0.672851X_0 + 0.502851X_1 + 0.012516X_2 = 0.888618$$

$$0.421871X_0 + 0.427258X_1 + 0.251178X_2 = 0.527904$$

$$0.045469X_0 + 0.856631X_1 + 0.055183X_2 = 0.376919$$

ans:

$$X_0 = 1.023376, X_1 = 0.405446, X_2 = -0.306788$$

$$n = 4$$

func:

$$0.091809X_0 + 0.869135X_1 + 0.826225X_2 + 0.477636X_3 = 0.900325$$

$$0.639270X_0 + 0.999930X_1 + 0.390377X_2 + 0.629008X_3 = 0.597285$$

$$0.453537X_0 + 0.286723X_1 + 0.605464X_2 + 0.084885X_3 = 0.046333$$

$$0.818988X_0 + 0.946712X_1 + 0.493504X_2 + 0.060837X_3 = 0.434549$$

ans:

$$X_0 = -0.690647, X_1 = 0.991689, X_2 = 0.124573, X_3 = -0.002313$$