

# prb6\_Fib

Monday, October 30, 2023 11:48 PM

for (0 = n <= nloop)

fibArry(n) [0, nloop]

returns a[n]			
n	i <= n	i-1	i-2
0	[0] = 0		
1	[1] = 1		
2	[2] = 1	1 + 0	1
3	[3] = 2	2 + 1	2
4	[4] = 3	3 + 2	3

0, 1, 1, 2, 3, 5

$$f(n) = (n-1) + (n-2), x \geq 2$$

Fib seq

n	T(n)
0	T(0) = 0
1	T(1) = 1 + 0 = 1
2	T(2) = 1 + 0 = 1
3	T(3) = 1 + 1 = 2
4	T(4) = 2 + 1 = 3
5	T(5) = 3 + 2 = 5
6	T(6) = 5 + 3 = 8

$$S = \{0, 1, 1, 2, 3, 5, 8\}$$

r = ? = constant ratio btwn successive terms

constant

$$\frac{a+b}{b} = \frac{a}{b} = \phi$$

$$a = 1 + b = (3-2) = 1 + 1 = 2$$

$$a = 2 + b = 1 \rightarrow 2 + 1 = 3 = [4]$$

$$\rightarrow (n-1) + (n-2)$$

$$\rightarrow T(n) = (n-1) + (n-2), n \geq 2$$

$$\sum_{k=0}^n (ar^k) = a \left( \frac{1-r^{n+1}}{1-r} \right)$$

$$1. \sum_{k=1}^n ar^k = ar + ar^2 + ar^3 + \dots + ar^n$$

$$2. S = \sum_{k=0}^n ar^k = a + ar + ar^2 + ar^3 + \dots + ar^n$$

$$3. rS = \sum_{k=0}^n ar^{k+1} = ar + ar^2 + ar^3 + \dots + ar^{n+1}$$

$$S = \{0, 1, 1, 3, 5, 8, \dots\}$$

$n \geq 2$

$$S = a \left( \frac{n-1}{n-2} \right) = \frac{3}{2} = 1.5$$

$$= \frac{5}{3} = 1.6$$

$$= \frac{8}{5} = 1.6$$

$$n \geq 2, a = 1.6$$