

Fibonacci Sequence:

$$F_0 = 0, \quad F_1 = 1, \quad F_n = F_{n-1} + F_{n-2} \quad \text{for } n > 1$$

generalizations:

1. Change the starting values:

$$F_0 = a, \quad F_1 = b, \quad F_n = F_{n-1} + F_{n-2} \quad \text{for } n > 1$$

If $a=2, b=1$, we get the Lucas sequence.

2. Change the recurrence:

$$F_0 = a, \quad F_1 = b, \quad F_n = r F_{n-1} + s F_{n-2} \quad \text{for } n > 1$$