

Fibonacci Numbers:

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

Generalizations:

1. Change the starting values.

$$\text{Let } G_0 = a, \quad G_1 = b, \quad \text{and } G_n = G_{n-1} + G_{n-2}.$$

a, b are some integers

2. Change the recurrence.

$$\text{Let } G_0 = a, \quad G_1 = b, \quad \text{and } G_n = rG_{n-1} + sG_{n-2}$$

for some integers a, b, r, s .