1. Sequences:

1.1. Fibonacci Sequence

The Fibonacci Sequence is defined through the recurrence relation $F_n = F_{n-1} + F_{n-2}$. It can also be expressed in *closed form:*

$$F_n = \left\lfloor \frac{1}{\sqrt{5}} \phi^n \right\rceil, \quad \phi = \frac{1+\sqrt{5}}{2}$$

The first 8 numbers of the sequence are:

F_1	F_2	F_3	F_4	F_5	F_6	F_7	F_8
1	1	2	3	5	8	13	21

$$\binom{n}{k_1, k_2, k_3, ..., k_m}$$

Here, we can simplify:

$$\frac{a \cdot b \cdot \cancel{x}}{\cancel{x}}$$

$$f(x,y) := \begin{cases} 1 \text{ if } \frac{x \cdot y}{2} \leq 0 \\ 2 \text{ if } x \text{ is even} \\ 3 \text{ if } x \in \mathbb{N} \\ 4 \text{ else} \end{cases}$$