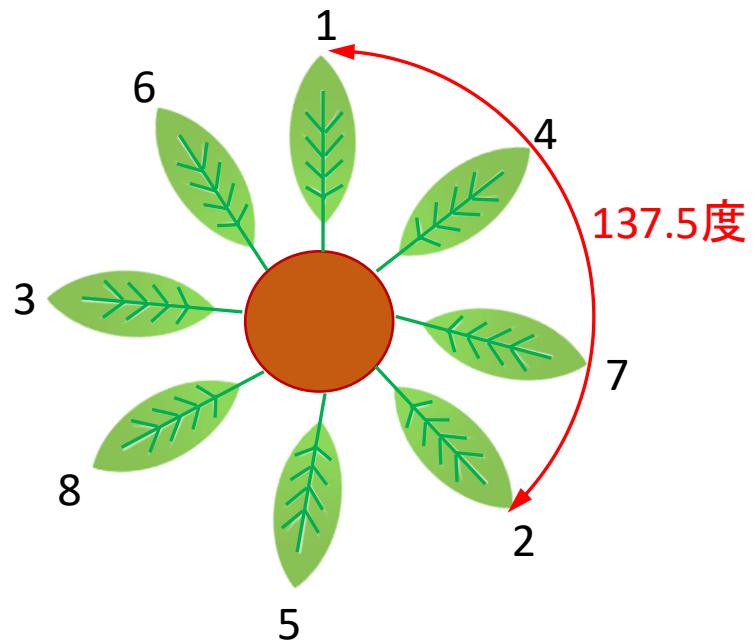
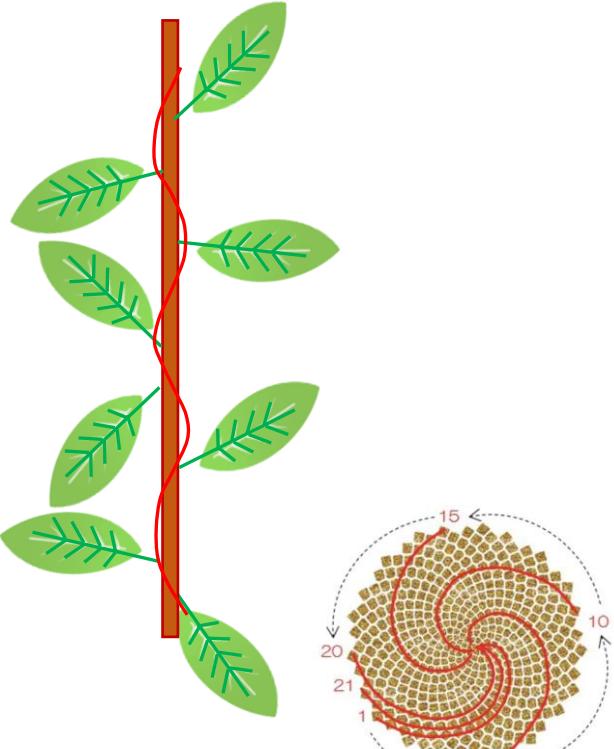


植物の黄金比

真上から見た場合



真横から見た場合



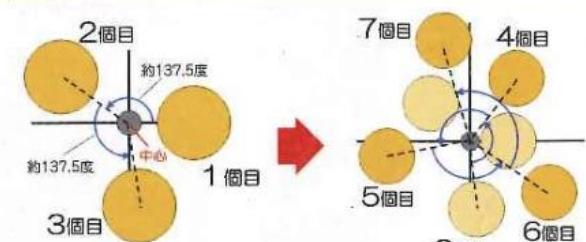
松ぼっくり



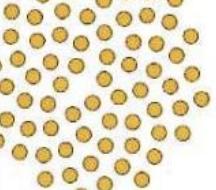
サボテン



出典: <https://neo.ac/column/9587/>



1~75個目



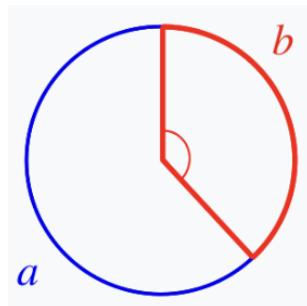
1~300個目



ヒマワリ



見比べて
みよう

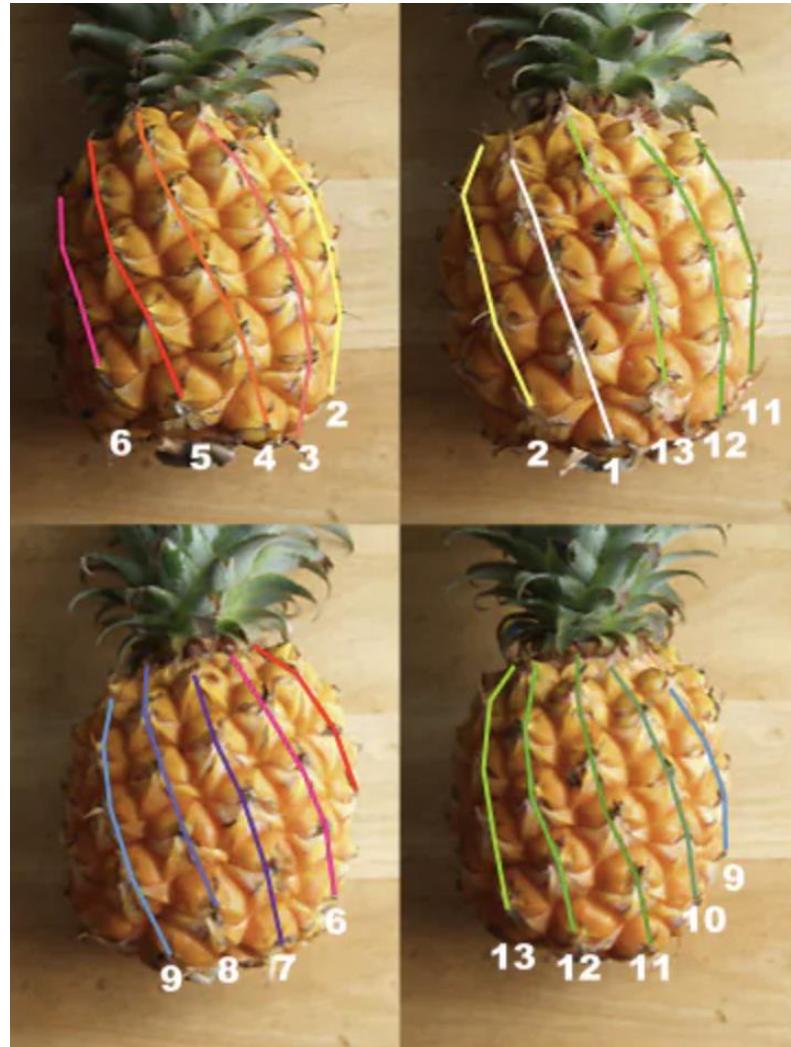


$$a:b = \frac{1 + \sqrt{5}}{2} : 1 = 1.618 : 1 \\ = 222.5 : 137.5$$

約137.5度ずつ回転させながら種をつくると、何百個並べてもすき間はできず、きれいならせん模様に並びます。

出典: <https://www.konbu.jp/blog/staff/15832>

パイナップル



リンゴ

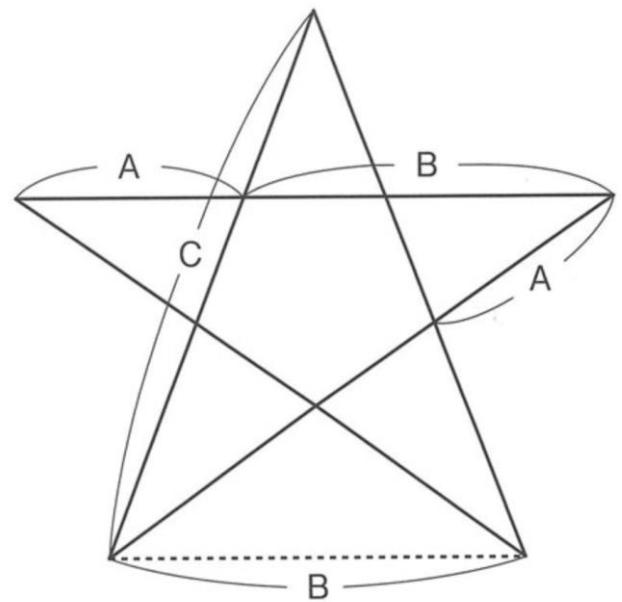


五芒星

黄金比=1.618

A : B = 1 : 1.618

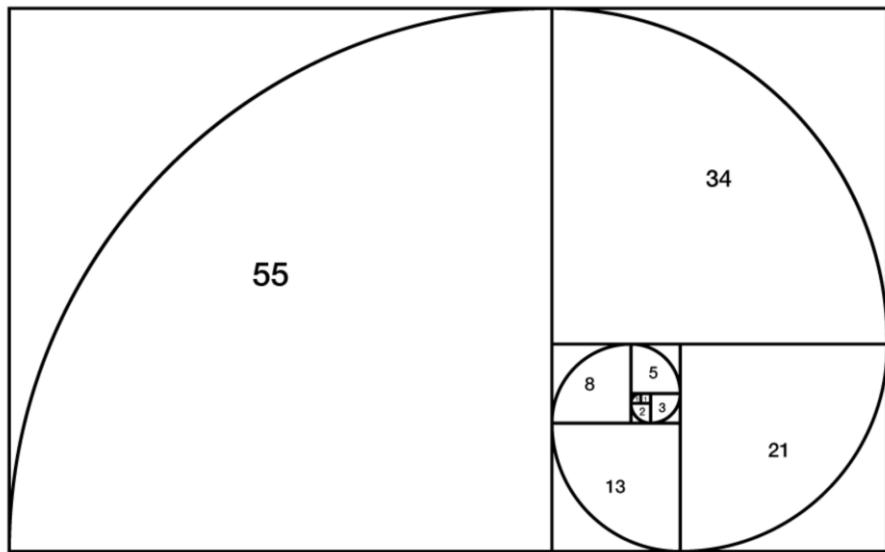
B : C = 1 : 1.618



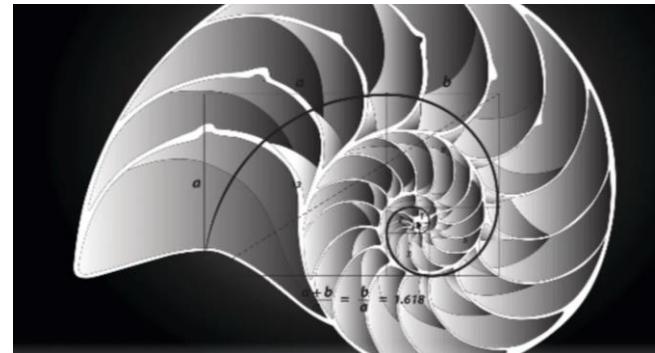
フィボナッチ数列: 0, 1, 1, 2, 3, 5, 8, 13, 21……

近接項の比は、黄金比に収束

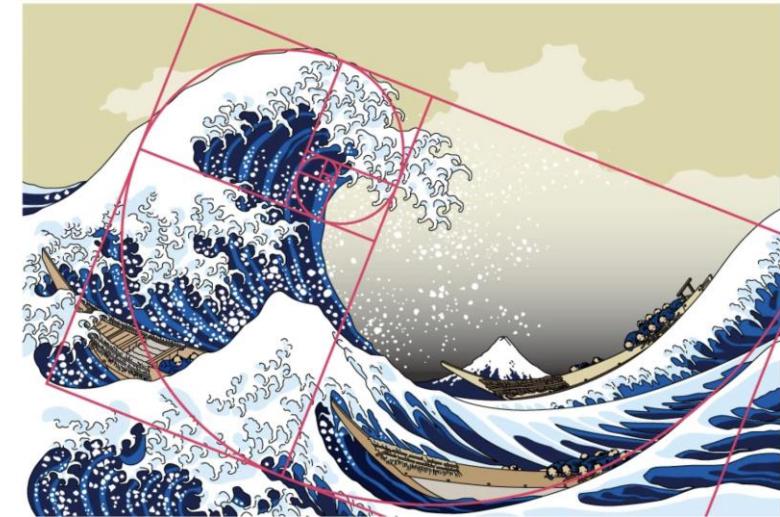
$$2 / 1 = 2 \quad 3 / 2 = 1.5 \quad 5 / 3 = 1.666\cdots \quad 8 / 5 = 1.6 \quad 13 / 8 = 1.625\cdots \quad 21 / 13 = 1.615\cdots \quad 34 / 21 = 1.619\cdots \quad 55 / 34 = 1.6176\cdots \quad 89 / 55 = 1.61818\cdots$$



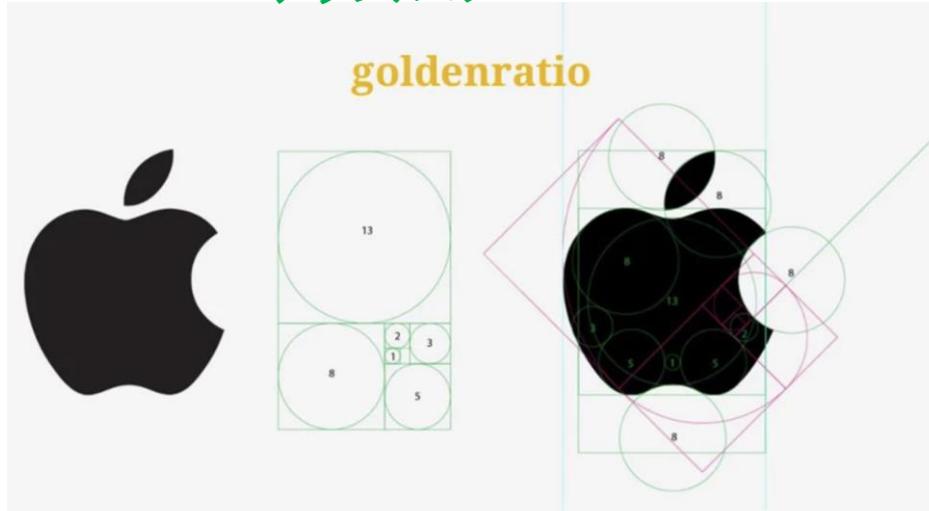
オウムガイ



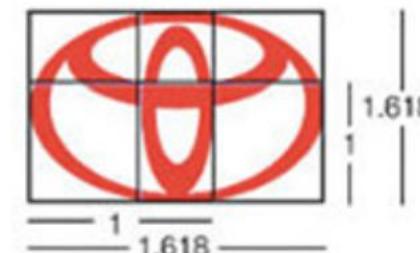
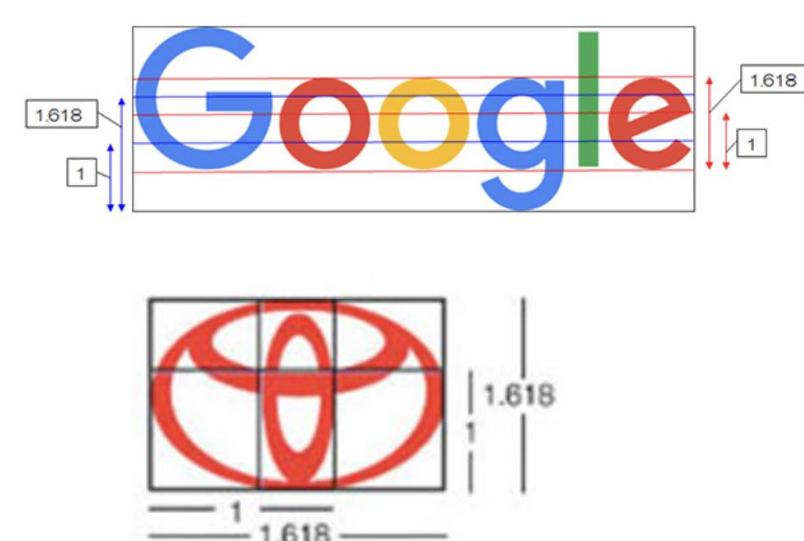
富嶽三十六景 神奈川沖浪裏



アップルのロゴ



出典: <https://tplant848.com/blog/fibonacci-sequence-design>



モナリザ

