



$\lim_{n \rightarrow \infty} \frac{F(n+1)}{F(n)} \rightarrow \phi$

$$F(n) = \text{round} \left( \frac{y^n}{\sqrt{5}} \right)$$

$$\text{gcd}(a, b)$$

$$a = \frac{y^n}{\sqrt{5}}$$

$$\sqrt{5}a = y^n$$

$$\lceil \log_y (\sqrt{5}a) \rceil \approx \text{the worst case scenario}$$