

The Fibonacci Sequence

The *Fibonacci sequence*, denoted F , is a sequence of numbers where each number is the sum of the previous two.

The following expression computes the Fibonacci number:

$$F_n = \frac{1}{\sqrt{5}} \left[\left(\frac{1 + \sqrt{5}}{2} \right)^n - \left(\frac{1 - \sqrt{5}}{2} \right)^n \right]$$

Assign a value for n

```
n = 10;
```

The result t is stored in `ans``.

```
s5 = sqrt(5);  
t1 = (1 + s5) / 2;  
t2 = (1 - s5) / 2;  
diff = t1^n - t2^n;  
ans = diff / s5
```

```
ans = 55.0000
```