

Fibonacci Sequence and Golden Ratio Worksheet

1 Find the missing numbers using the Fibonacci sequence.

a) 8, 13, _____, _____, 55, 89, _____, _____, 377

b) 84, 136, 220, _____, _____, 932, _____, _____, _____

c) 610, 987, _____, _____, _____, 6765, 10946, 17711, _____

d) 55, 89, _____, _____, _____, 610, _____, _____, _____

2 Determine the value of the golden ratio (Using quadratic formula).

3 Find out the 18th term of the Fibonacci sequence using the golden ratio, when the 17th term is 987. [Here, use: $F_n = F_{n-1} \times \phi$, where F_0 is the first term and ϕ is the golden ratio]

4 Write down the following Fibonacci numbers using the golden ratio.

$$\left[\text{Use: } F_n = \frac{\phi^n - (1 - \phi)^n}{\sqrt{5}} \right]$$

a) When $n = 6$

b) When $n = 8$

c) When $n = 5$

Fibonacci Sequence and Golden Ratio Worksheet

Answers

1 Find the missing numbers using the Fibonacci sequence.

a) 8, 13, 21, 34, 55, 89, 144, 233, 377

b) 84, 136, 220, 356, 576, 932, 1508, 2440, 3948

c) 610, 987, 1597, 2584, 4181, 6765, 10946, 17711, 28657

d) 55, 89, 144, 233, 377, 610, 987, 1597, 2584

2 Determine the value of the golden ratio (Using quadratic formula).

$$\phi = \frac{1}{2} + \frac{\sqrt{5}}{2}$$

3 Find out the 18th term of the Fibonacci sequence using the golden ratio, when the 17th term is 987. [Here, use: $F_n = F_{n-1} \times \phi$, where F_0 is the first term and ϕ is the golden ratio]

1597

4 Write down the following Fibonacci numbers using the golden ratio.

$$\left[\text{Use: } F_n = \frac{\phi^n - (1 - \phi)^n}{\sqrt{5}} \right]$$

a) When $n = 6$

b) When $n = 8$

c) When $n = 5$

8

21

5