

# MATH ENCOUNTERS

## TRUE or FALSE?

The following are all claims made about the Golden Ratio ( $\phi$ ) and the Fibonacci numbers. Which are true and which are false? This is about scientific knowledge, where truth depends on evidence. You should answer "True" only if there is reliable evidence in favor of the statement. Otherwise, we have to assume the statement is false.

TRUE FALSE

- |                          |                          |     |  |
|--------------------------|--------------------------|-----|--|
| <input type="checkbox"/> | <input type="checkbox"/> | 1.  | Most people find the Golden Rectangle to be the most perfect rectangle.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 2.  | The ancient Greeks based much of their architecture on the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 3.  | The Parthenon building in Athens is based on the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 4.  | The ancient Egyptians based the pyramids on the Golden Ratio.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 5.  | The ancient Babylonians knew about the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 6.  | Many modern buildings incorporate the Golden Ratio in their design.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 7.  | The United Nations General Secretariat Building in New York comprises three Golden Rectangles, stacked vertically.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 8.  | The ratio of a person's height to the height of their navel is the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 9.  | Boticelli proportioned his <i>Venus</i> according to the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 10. | Leonardo Da Vinci used the Golden Ratio to proportion his depictions of human forms, including the <i>Vitruvian Man</i> and the face of <i>Mona Lisa</i> .       |
| <input type="checkbox"/> | <input type="checkbox"/> | 11. | The architect Le Corbusier advocated and used the Golden Ratio on architecture.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 12. | Georges Seurat based his painting <i>The Parade of a Circus</i> on the Golden Ratio.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 13. | The Roman poet Virgil composed the <i>Aeneid</i> based on the Golden Ratio.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 14. | Early Sanskrit poets used the Fibonacci numbers as a basis for the meter of some poems.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 15. | Mozart used the Golden Ratio in some of his music.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 16. | Bartok used the Golden Ratio in some of his music.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 17. | Claude Debussy used the Golden Ratio in some of his music.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 18. | The Golden Ratio occurs frequently in nature.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 19. | The Nautilus shell grows in a fashion governed by the Golden Ratio.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 20. | The Golden Ratio and the Fibonacci sequence can be used to reliably predict stock prices.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 21. | The Golden Ratio occurs in certain crystal structures.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 22. | There is a Fibonacci number with exactly 666 digits.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 23. | If the $N^{\text{th}}$ Fibonacci number is prime, then $N$ is prime.   |
| <input type="checkbox"/> | <input type="checkbox"/> | 24. | If $N$ is prime, the $N^{\text{th}}$ Fibonacci number is prime.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 25. | Any number (other than 1) that divides into a Fibonacci number will not divide into the next one.  |
| <input type="checkbox"/> | <input type="checkbox"/> | 26. | If you square any Fibonacci number, the answer will differ by at most 1 from the product of the two adjacent Fibonacci numbers.                                  |
| <input type="checkbox"/> | <input type="checkbox"/> | 27. | You can calculate the $N^{\text{th}}$ Fibonacci number by computing $\phi^N/\sqrt{5}$ and rounding to the nearest whole number, except for small values of $N$ . |
| <input type="checkbox"/> | <input type="checkbox"/> | 28. | There is a respectable mathematics journal devoted to the Fibonacci sequence.  |