

Math 100, Spring '15: Supplementary Homework on the Golden Ratio

These questions relate to the paper *Misconceptions about the Golden Ratio* by George Markowsky, which appeared in the *College Mathematics Journal*, v23 n1 p2-19 Jan 1992. You can find it at his web site, <http://umcs.maine.edu/~markov/GoldenRatio.pdf>

Fill in the answers (and your ID) on the next page, and turn that page in. (You'll need to print it out!)

Due: Wednesday, Feb 25

1. If the ratio of the side to the base of an isosceles triangle is ϕ , what is the apex angle (the angle between the two equal sides)?

A. 45° B. 72° C. 36° D. 90° E. None of above

Makowski discusses the history of terms like “golden ratio”, “golden section”, and “divine proportion”.

2. When was the term “golden ratio” (possibly in another language) first used?

A. Greek times B. Renaissance period C. 19th Century D. 21st Century E. 22nd Century

3. When was the term “divine proportion” (possibly in another language) first used?

A. Greek times B. Renaissance period C. 19th Century D. 21st Century E. 22nd Century

4. The Great Pyramid of Cheops is often said to have Golden Ratio proportions. The ratio of which dimensions of this pyramid is claimed to equal ϕ ?

A. Height to length of base B. Height to area of base C. Width of base to length of base
D. Slant height to half the length of base E. None of the above

5. Which of these arguments does Makowski make that the pyramid story is bogus.

A. Herodotus died before the pyramids were built. B. The passage from Herodotus giving the proportions of the pyramid is mistranslated by the proponents. C. The dimensions of the pyramid as given by Herodotus were wrong. D. More than one of the above E. All of the above

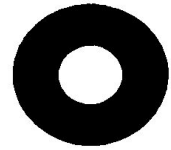
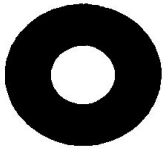
6. Several paintings or drawings of da Vinci are often said to intentionally use the golden ratio. Which is *not* an argument given by Makowski that Leonardo da Vinci did not use this in his painting of St. Jerome?

A. Leonardo did not learn about ϕ until 13 years after he did the painting. B. Leonardo illustrated Luca Pacioli's book *de Divina Proportione* C. Any placement of the golden rectangle over the painting is arbitrary and unconvincing D. None of the above E. All of the above

7. Which classical Roman adventure novel is often claimed to have its passages in golden ratio to one another?

A. *The Iliad* B. *Roman Holiday* C. *The Aeneid* D. *Quo Vadis* E. None of the above

8. Makowski quotes Malcolm Browne (p.15) as saying that a particular way of measuring the human body produces roughly the golden ratio. Figure out what he means by this, do this measurement on yourself, and keep track of the number; I'm going to do an (anonymous) clicker poll next week to see how close the class average comes to ϕ . (There is nothing to answer here at this time!)



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