by Benjamin Bloch, Ph.D.

Let a = angle HFP, b = angle GFH, and c = angle AFG
Then a = b + c, and a + b + c = 2a
In triangle HFP: FP = 0.382/ tan a
In triangle AFP: FP = 1/ tan 2a
Therefore 0.382/ tan a = 1/ tan 2a

Since $\tan 2a = 2 \tan a / (1 - \tan^2 a)$
We find that $\tan^2 a = 0.236$, and thus a = 25.91 degrees
Therefore FP = 1 / tan 2a = 0.786
Angle FHP = 90 - a = 64.1 degrees
Now angle FAP = 90 - 2a = 38.2 degrees and angle FHG = 180 - 64.1 = 115.9 degrees
GH = 1 - 2x0.382 = 0.236 and therefore GP = 0.618

(Line AP is subdivided into the Golden Proportion; see my guest editorial.)

In triangle GFP: tan(a + b) = 0.618/0.786 = 0.786
Therefore a + b = 38.167 degrees, making b = 12.26 degrees
Since b + c = a, or 12.26 + c = 25.91, we see that c = 13.65 degrees
Angle FGP = 90 - (a + b) = 90 - 38.167 = 51.83 degrees (the famous Great Pyramid Angle)
Finally, angle FGA = 180 - 51.83 = 128.17 degrees
This gives us all of the angles.

Now FA = 1/ sin 2a = 1.272
FG = 0.618 / sin (a + b) = 0.618 / sin 38.167 = 1
Finally, FH = 0.382/ sin a = 0.874