1. **Use the Pythagorean Theorem to find s, the slant height of the pyramid.**

$$s^2 = a^2 + h^2 \Rightarrow s^2 = (377.88)^2 + (481.40)^2 \Rightarrow s \approx 612.00$$

2. **Find the ratio of the slant height s to half the length of the base, a.**

$$\text{Ratio of slant height to half the base} = \frac{s}{a} = \frac{612.00}{377.88} \approx 1.61956.$$

3. **Is the ratio $\frac{\mathbf{s}}{\mathbf{a}}$ w/in acceptance range for the Golden Ratio?**

   Since our acceptance range is:

$$1.61956 \text{ lies w/in } 1.5533 \leq \text{ ratio } \leq 1.6828 \Longrightarrow \frac{s}{a} \text{ could be } \varphi$$

In fact, $\frac{s}{a}$ is quite close to the Golden Ratio – much closer than we really have any right to expect it to be, given all the provisos we made earlier. Which leads us to the question...

4. **How Close is this to the Golden Ratio?**

$$\frac{s/a}{\varphi} = \frac{1.61956}{1.61803} = 1.000946 \Rightarrow \frac{s}{a} = 100.095\%(\varphi).$$

The ratio of the slant height to half the side is within 0.1% of the Golden Ratio. This is *incredibly* close.

5., 6. **Find the ratio of the actual height of the pyramid, h, to half the length of the base, a.** and **Find $\sqrt{\varphi}$.**

$$\frac{h}{a} = \frac{481.4}{377.88} \approx 1.27395 \qquad \sqrt{\varphi} = \sqrt{\frac{1+\sqrt{5}}{2}} \approx 1.27202.$$

7. **How far off is h/a from $\sqrt{\varphi}$?**

$$\frac{h/a}{\sqrt{\varphi}} \approx \frac{1.27395}{1.27202} = 1.001517 \Rightarrow \frac{h}{a} = 100.15\%(\sqrt{\varphi}).$$

The ratio of pyramid's height to half the length of its base is w/in 0.2% of $\sqrt{\varphi}$ – well w/in most any acceptance ratio.