**Erastosthenes’ Calculation of the Size of the Earth**

Let’s set the record straight; The ancient Greeks (and they weren’t the only ones) knew perfectly well that the earth wasn’t flat. (For example, looking at ships’ masts as they disappeared over the horizon was one piece of evidence) From lunar eclipses, they figured that it was close to the shape of a sphere. They also knew the earth was very very very far away from the earth. To figure out the size (or circumference) of the earth, Erastosthenes (E) started by assuming the earth was a sphere. He also assumed that because the earth was so far from the sun that the sun’s rays striking two different places on earth (not very far from each other) were nearly parallel.

Now, E lived in Syene, Egypt and knew that on the day of the summer solstice, the sun would shine directly into a well in Syene. He also knew that there was a city, Alexandria, almost directly 5000 stadia (1 stade=516.73ft) north of Syene where on the summer solstice a pole cast a short shadow.

Using trigonometry he easily figured out the angle alpha (α) based on the height of the pole and length of the shadow. α≈7.2° (based on a 360° circle). Look at the diagram and see if you can figure out how E calculated the circumference of the earth.

