

Sizing Up The Universe

Fundamental Questions

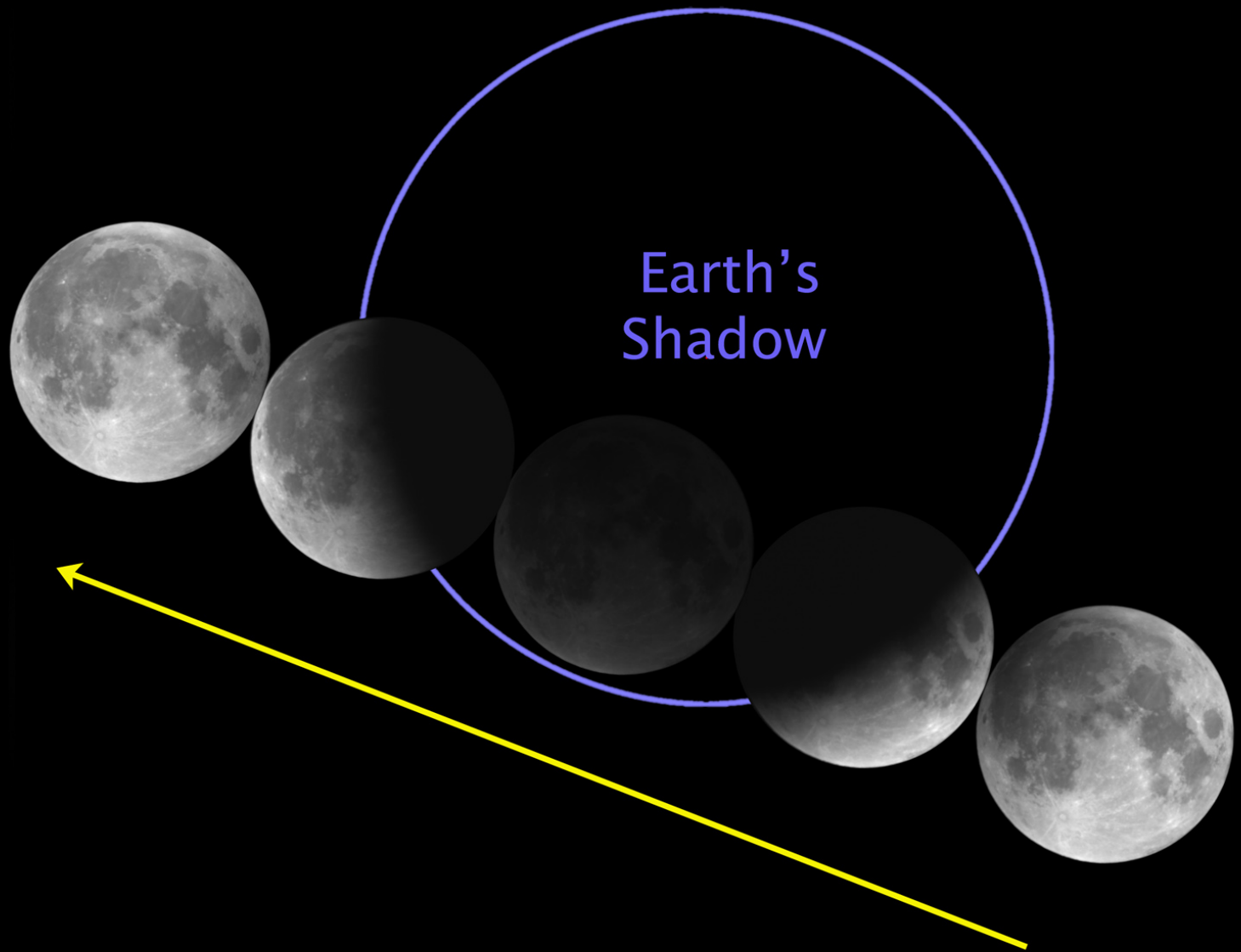
Robert J. Vanderbei

Oct. 8, 2024

Is The Earth Flat?

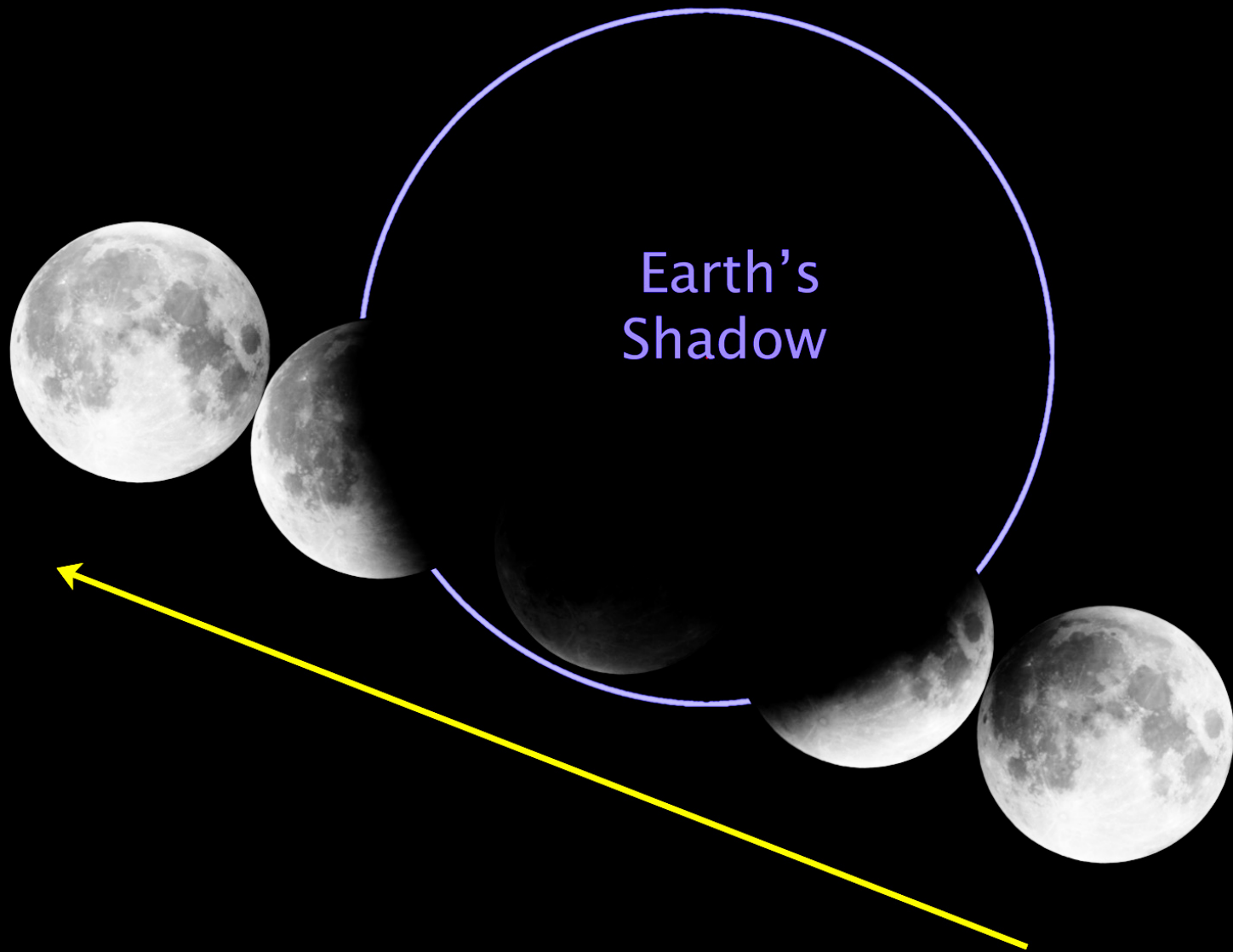
A Picture's Worth a Thousand Words...





Earth's
Shadow

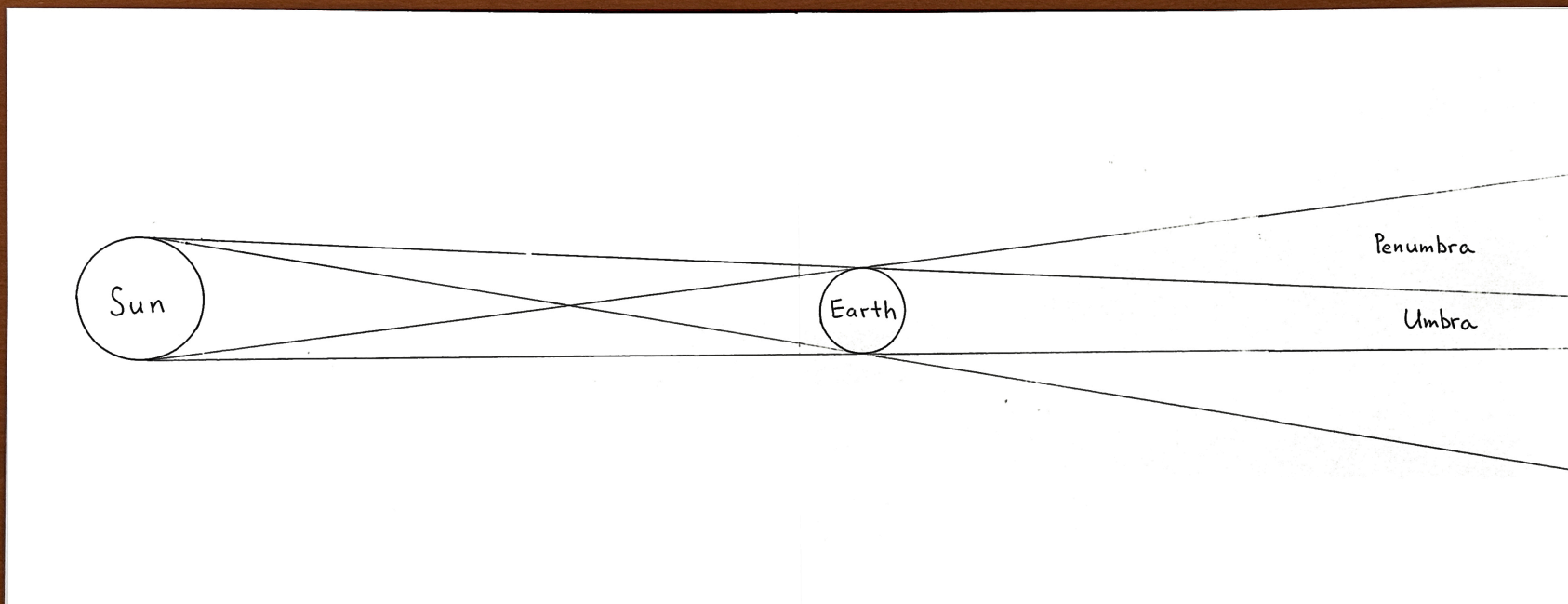
How Aristarchus measured the size of the Moon.



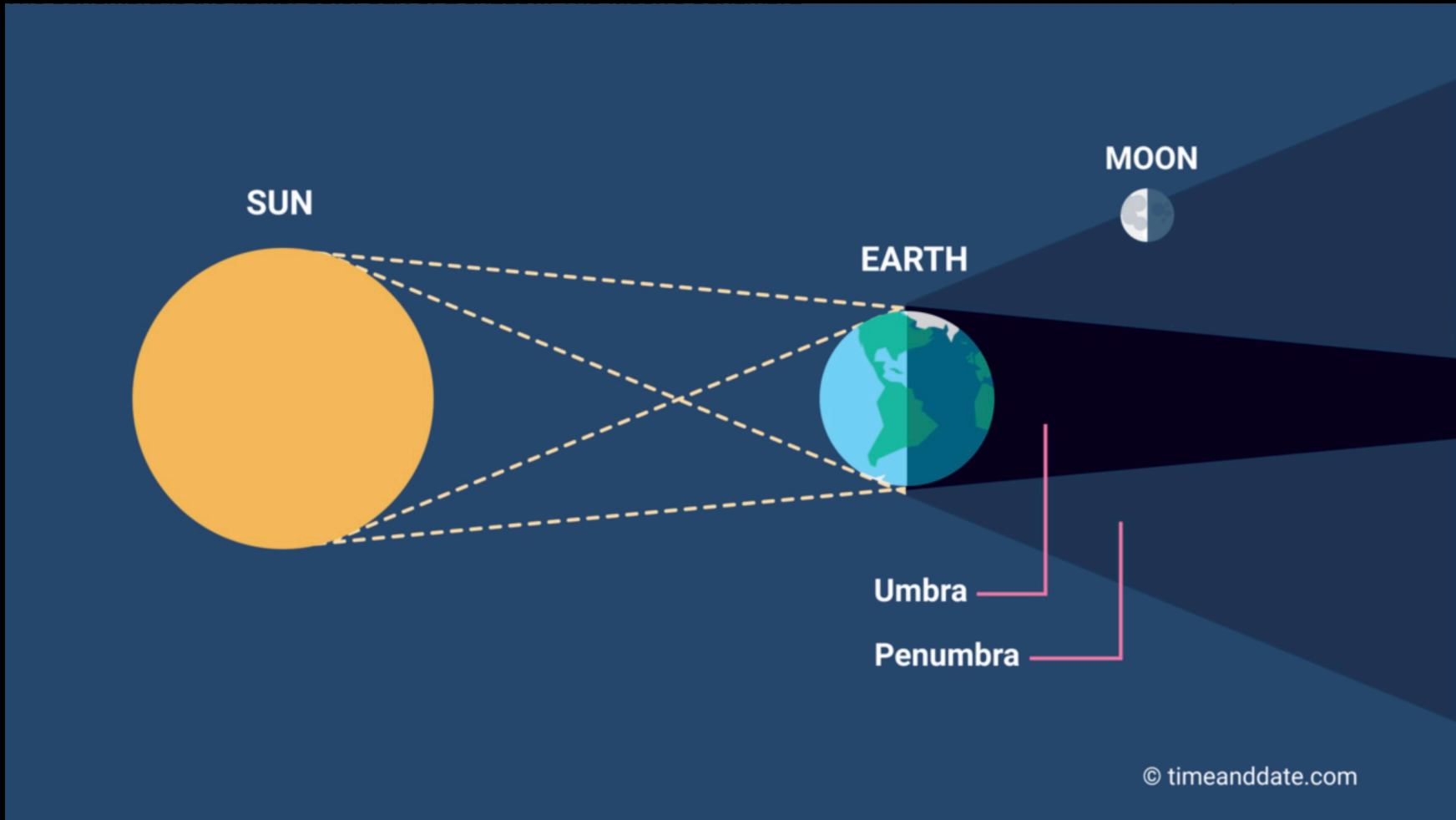
Earth's
Shadow

How Aristarchus measured the size of the Moon.

Umbra and Penumbra



Umbra and Penumbra



What's Our Latitude?



What's Our Latitude?



Could use a *sextant*.

How Big Is The Earth?



Charles Johnson was a Flat Earther

Johnson spent years examining the studies of flat- and round-Earth theories and proposed evidence of a conspiracy against flat Earth: "The idea of a spinning globe is only a conspiracy of error that Moses, Columbus, and FDR all fought..." His article was published in the magazine Science Digest in 1980. It goes on to state: "If it is a sphere, the surface of a large body of water must be curved. The Johnsons have checked the surfaces of Lake Tahoe and the Salton Sea without detecting any curvature."

Blue



Green



Red



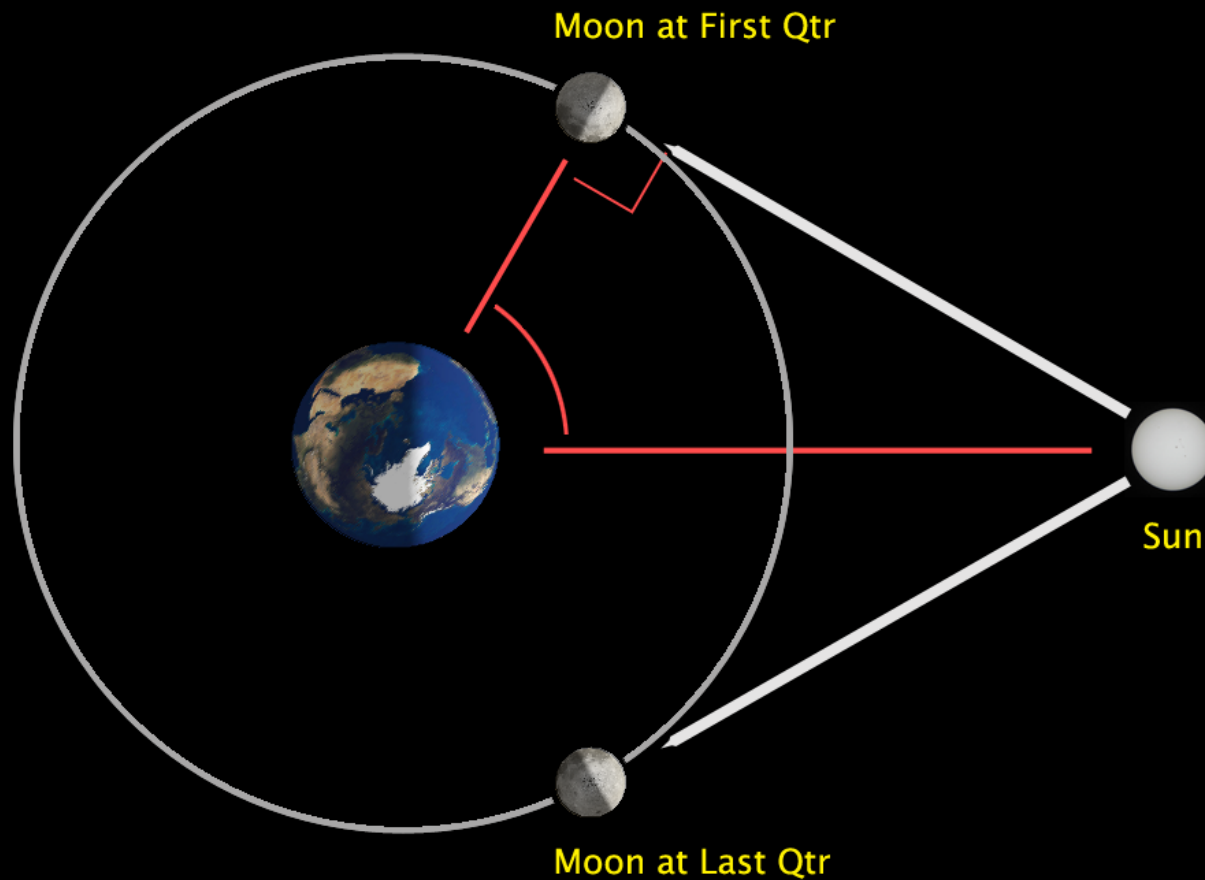
We'll address numerical details later.

How Eccentric Is The Moon's Orbit?



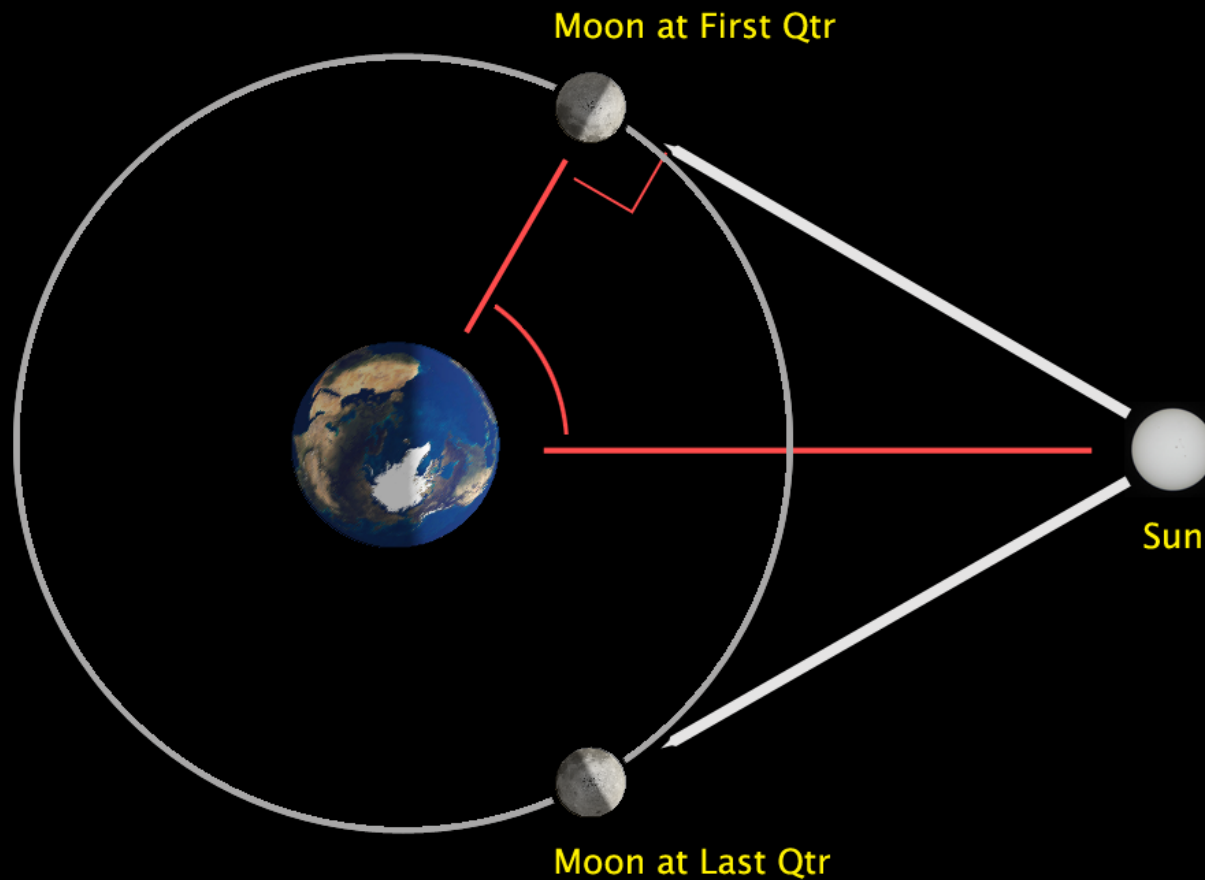
Which Is Further Away... Sun or Moon?

Aristarchus' method...



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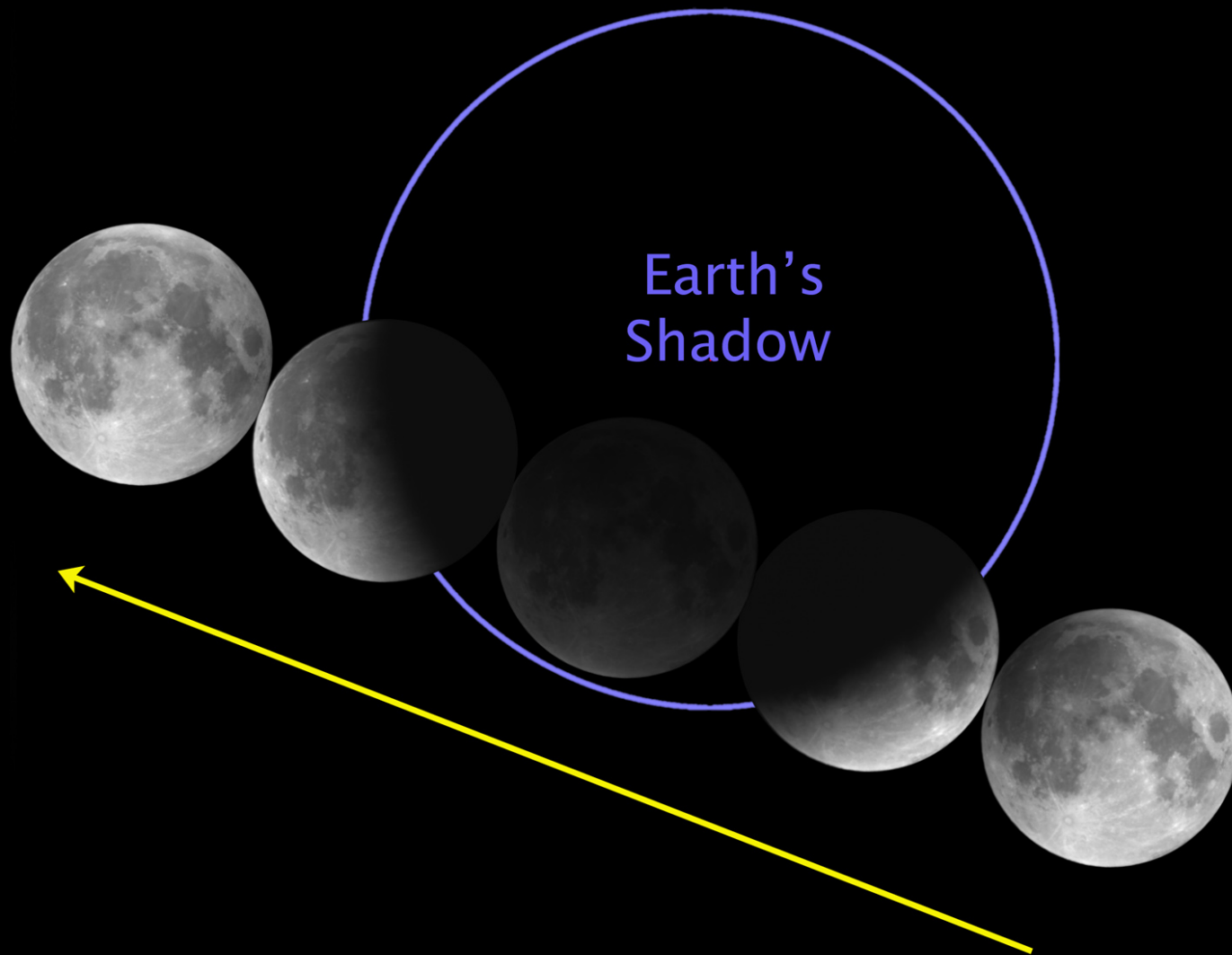


How Much Further?

How Much Further?

About 400 times further

How Big Is The Moon?



How Aristarchus measured the size of the Moon.