

Consider, for the moment, how far the moon travels in a single day. We can easily estimate this by knowing the moon is roughly 250,000 miles away. Although the orbit isn't exactly circular, we can treat it as one and find it travels roughly 1,500,000 miles in a month. To find out how many miles per day, let's divide this 30, a round number of days in a month, and we find it travels about 50,000 miles in a day. Traveling at about 2000 miles an hour, it could complete the Appalachian Trail in one hour.

For all of these measures, I used rough estimates and simple equations; the moon doesn't take thirty days to orbit, and Pi isn't 3. Even so, my estimate of 50,000 miles a day and 2000 miles an hour are close to the real values of 53,430 and 2,267. The real value of the Appalachian Trail is about 2,200 miles.

These estimates and simple math have allowed me to get a sense of how fast the moon moves and relate it to something physical on earth and say "The moon travels the distance of the Appalachian Trail in an hour."

How amazing is that!

Even at lower levels of precision, one of the reasons to learn mathematics is that it allows you to bring the cosmological down to the human. That's amazing too.

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