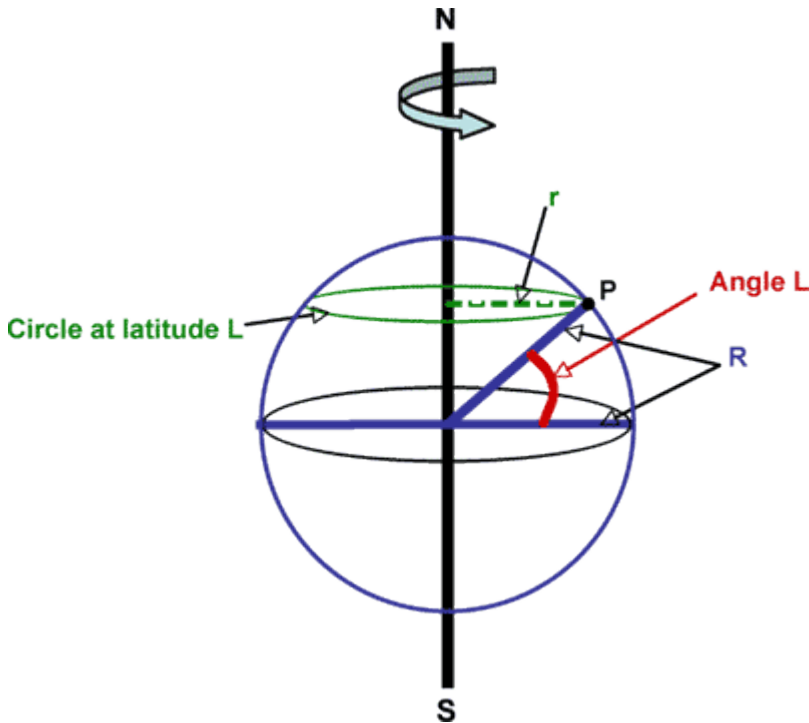


How far have YOU come?

Approximating Earth's orbit around the sun to be an ellipse with semimajor axis of 1 au and eccentricity of 0.0167, the distance Earth travels in one year is 940 million kilometers (584 million miles).

Source: Earth's orbit - Wikipedia, the free encyclopedia https://en.wikipedia.org/wiki/Earth%27s_orbit



R at equator = 3,960 statute miles, Latitude (L) of my house is about N48.307799

Circumference of a Circle at Latitude L:

$$r = R * \cosine(L) =$$

$$R * (0.66512871742532255080814979279513)$$

$$r = 3,960 \text{ statute miles} *$$

$$(0.66512871742532255080814979279513)$$

$$= 2633.9097210042773012002731794687$$

statute miles

$$\text{Circumference, } C = 2 * \text{PI} * r =$$

$$16549.34285945155899038959305623 \text{ statute miles} = \text{distance my house travels in 1 day (1 rotation of the earth)}$$

$$365.25 *$$

$$16549.34285945155899038959305623$$

$$= 6044647.4794146819212397988637879$$

statute miles I would travel in 1 year, due only to the earth's rotation.

ADD these:

6,044,647.5 miles/yr due only to the earth's rotation.
 584,000,000.0 miles/yr trip the earth makes in one orbit of our Sun.
 376,938,000.0 miles/yr due to Sun's and Earth's velocity towards Vega.
 4,233,978,000.0 miles/yr due to Sun's and Earth's rotational velocity in our galaxy.
 11,395,800,000.0 miles/yr due to Galaxy moving through universe relative to CBR.

16,596,760,647.5 Miles I travel in 1 year through our known universe.

Multiply that by my age and I have traveled 1,111,982,963,382.5 miles as of 9/16/2015.
 That is 1 Trillion, 111 Billion, 982 Million, 963 thousand, 382.5 miles.

My average speed? $24 * 365.25 * 67 = 587322$ hours in 67 years
 hence $1,111,982,963,382.5 \text{ miles traveled} / 587322 \text{ hours} = 1,893,310.6 \text{ mph}$ or 525.92 mi/sec.

This assumes, of course, I have remained in the same spot (Latitude) on the earth the whole time and I did a little rounding here and there too. Still a long way I have come!

How far have you traveled?

What effect would living closer to the equator have on the distance and average speed for you?

What if you lived at the North pole?

Another source: <https://astrosociety.org/edu/publications/tnl/71/howfast.html#>

Do the math!