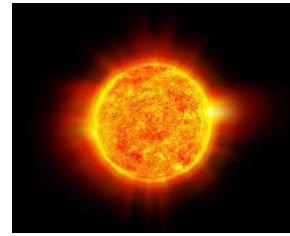


Light Years

- Our sun appears large and very bright because it is close to us.

But it's actually 150 million km away! If that's close....how far away is far???



- Astronomers needed a new unit for very large distances. (larger than AU).

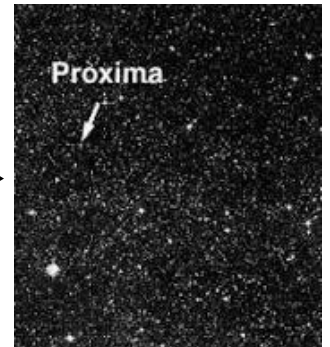
1 **lightyear** (ly) = distance light travels in space in 1 year.

$$1 \text{ ly} = 9.46 \times 10^{12} \text{ km}$$

- The sun is our closest star, of course. **Proxima Centauri** is the next nearest star. It is 4.01×10^{13} km away – how many light years is that?

$$4.01 \times 10^{13} \text{ km} \times \frac{1 \text{ lightyear}}{9.46 \times 10^{12} \text{ km}} = 4.2 \text{ lightyears}$$

Note: Proxima might be our next closest star, but it is pretty dim!



- The next closest star to us (**Vega**) is 25 ly from earth. How far is that in kilometers?

$$25 \text{ lightyear} \times \frac{9.46 \times 10^{12} \text{ km}}{1 \text{ lightyear}} = 2.4 \times 10^{14} \text{ km}$$



Confused with the math? Please see Mrs. Hudecki for some help.