

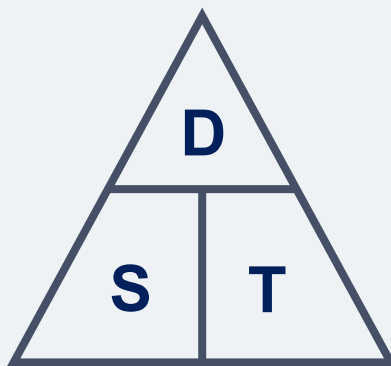


Distances to objects in space are very, very large. The nearest star (excluding the Sun), **Alpha Centauri**, is **41.32 trillion km**, or **41,320,000,000,000 km!!**

Therefore, astronomers use a **light-year** unit, which is the distance that light can travel in a year.

The speed of light is almost **300,000,000 (3 x 10⁸) m/s**.

Knowing this, we can calculate the distance of a light year.



D = Distance
S = Speed
T = Time

1. Rearrange the equation for distance:

Distance =
speed x time

2. Calculate the time in seconds of 1 year:

31,557,600 or 31.6x10⁶ s

Time in
seconds of
one year

=

days in
one
year
365.25

×

hours
in one
day
24

×

minutes
in one
hour
60

×

seconds
in one
minute
60

3. 1 light year =

9,467,280,000,000,000 or 9.47x10¹⁵ m

4. How many light years away is Alpha Centauri?

41,320,000,000,000,000 /
9,467,280,000,000,000 =
4.36 lyr