

Light Speed Math

A light year is a common unit of measurement in astronomy. It is how far light can travel over a year. Using what you know about the speed of light per second, find the measurement of a light year.

$$186,000 \text{ miles/sec} \times 60 \text{ seconds} \times 60 \text{ minutes} \times 24 \text{ hours} \times 365 \text{ days} = 5,865,696,000,000$$

One light year is roughly 5.8 trillion miles

Now, using your knowledge of the speed of light per second, calculate the distances between each item in the diagram.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$



Note: This diagram shows rough estimates.

(Multiply speed of light by the time in seconds)

$$\text{Moon to Earth: } 186,000 \text{ mps} \times 1.2 \text{ sec} = 223,200 \text{ miles}$$

$$\text{Earth to Sun: } 186,000 \text{ mps} \times 510 \text{ sec} = 94,860,000 \text{ miles}$$

$$\text{Sun to Pluto: } 186,000 \text{ mps} \times 20,400 = 3,794,400,000 \text{ miles}$$

$$\text{Pluto to nearest star: } 186,000 \text{ mps} \times 22,075,200 = 4,105,987,200,000 \text{ miles}$$

Fun Fact: Did you know that light from the closest star besides the Sun takes 4.3 years to reach Earth?