## Answer on Question #46982, Physics, Optics

If the sun is 150 million km away from the earth, how long does it take sunlight to reach the earth

0.5 s

1500 s

45 s

500 s

### Solution:

Given:

$d = 150 \cdot 10^6 \text{ km} = 150 \cdot 10^9 \text{ m}$,

$v = 3 \cdot 10^8$ m/s is the speed of light,

$t = ?$

$$\text{time} = \frac{\text{distance}}{\text{speed}}$$

We will divide the distance to the Sun by the speed of light, which will give us the answer in seconds:

$$t = \frac{d}{v} = \frac{150 \cdot 10^9}{3 \cdot 10^8} = 500 \text{ s}$$

**Answer:** **500 s**