Answer on Question #38885, Physics, Mechanics | Kinematics | Dynamics

The Space Shuttle travels at a speed of about 8.29 x 103 m/s. The blink of an astronaut's eye lasts about 104 ms. How many football fields (length = 91.4 m) does the Space Shuttle cover in the blink of an eye?

Solution:

Given:

$v = 8.29 \cdot 10^3$ m/s

$t_{blink} = 104$ ms $= 104 \cdot 10^{-3}$ s

$L = 91.4$ m

Find:

K_{fields} - ?

The kinematic equation that describes an object's motion is:

$$D = v \cdot t_{blink},$$

where D is the distance traveled by Space Shuttle.

$D = v \cdot t_{blink} = 8.29 \cdot 10^3 \cdot 104 \cdot 10^{-3} = 826.16$ m.

$$K_{fields} = \frac{D}{L} = \frac{826.16}{91.4} = 9.43 \approx 9$$

Answer. 9 fields.