

Captains' Fight 3

FPT 2018
9-10th February



1 Question

2 Solution

You have 2 minutes to solve the following question:

In the time a Dassault Rafale would go from the Earth to the Sun at full speed, how many wing beats would a mosquito do ?

1 Question

2 Solution

One more slide for the solution !

- Frequency of a mosquito in flight: $\simeq 500 \text{ Hz}$.
- Max speed of a Rafale: $\simeq \text{Mach } 2 \simeq 2000 \text{ km.h}^{-1}$.
- Distance Earth-Moon: $\simeq 150 \cdot 10^6 \text{ km}$.

$$N_{\text{beats}} \simeq \underbrace{\frac{150 \cdot 10^6}{2000}}_{\text{number of hours}} \times \underbrace{3600}_{\text{seconds in a hour}} \times \underbrace{500}_{\text{beats by second}}$$

$$\Rightarrow N_{\text{beats}} \simeq 10^{11} \text{ wing beats}$$