Answer on Question #47918, Physics, Mechanics | Kinematics | Dynamics

Question:

A baseball fan sitting in the cheap seats is 136 m away from homeplate. How much time elapses between the instant that the fan sees a batter hit the ball and the moment the fan hears the crack of the bat?

Answer:

Speed of sound in air equals $c = 340\ m/s$. Therefore time elapses between the instant that the fan sees a batter hit the ball and the moment the fan hears the crack of the bat:

$$t = \frac{d}{c}$$

where d is distance to the homeplate.

$$t = \frac{136\ m}{340\ \frac{m}{s}} = 0.4\ s$$

Answer: 0.4 s