Answer on Question #47917, Physics, Mechanics | Kinematics | Dynamics

Question:

A geologist is camped 7570 m (4.70 miles) from a volcano that erupts. How much time elapses before the geologist hears the sound from the eruption?

A) 4.70s

B) 344s

C) 22.0s

D) 0.014s

E) 7570s

Answer:

Speed of sound in air equals $c = 340 \ m/s$. Therefore time elapses before the geologist hears the sound from the eruption:

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

where d is distance to the volcano.

$$t = \frac{7570 \ m}{340 \ \frac{m}{s}} = 22 \ s$$

Answer: C) 22.0s