

Answer on Question 73796, Physics, Other

Question:

A boy yells in a narrow valley. The sound reflects off of a boulder that is 80 m away. How long will it take to hear the echo if the speed of a sound wave is 320 m/s ?

Solution:

We can find the time that needs the boy to hear the echo from the formula:

$$d = vt,$$

here, $d = 2 \cdot 80\text{ m} = 160\text{ m}$ is the distance that needs the sound wave to travel from the boy to the boulder and return back to the boy, $v = 320\text{ m/s}$ is the speed of the sound wave and t is the time that needs the boy to hear the echo.

Then, we get:

$$t = \frac{d}{v} = \frac{160\text{ m}}{320\frac{\text{m}}{\text{s}}} = 0.5\text{ s}.$$

Answer:

$$t = 0.5\text{ s}.$$

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