Sound Waves Quiz

Due Jun 6 at 1pm   **Points** 10   **Questions** 5   **Available** Jun 1 at 12am - Jun 6 at 2pm 6 days
Time Limit None

Instructions

Please read the lab instructions and the powerpoint that is posted in the Sound Waves Module before taking the quiz. You have two attempts at the quiz, and no time limit. For each question, round your answer to the second decimal place.

Attempt History

	Attempt	Time	Score
LATEST	**Attempt 1**	74 minutes	4 out of 10

⚠ Correct answers are hidden.

Score for this quiz: **4** out of 10
Submitted Jun 2 at 1:41pm
This attempt took 74 minutes.

Question 1	2 / 2 pts

The temperature of the room is 74.0°F, what is the temperature in Celcius?

> 23.3300

Question 2	2 / 2 pts

What is the theoretical velocity of a sound wave, in m/s, travelling in a room with a temperature of 75.3°F?
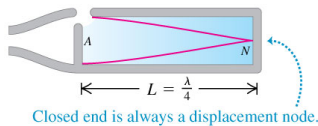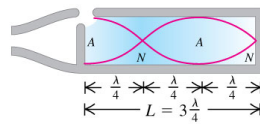
345.9300

Question 3

0 / 2 pts

Determine the length of the resonance tube in centimeters for a sound wave of wavelength 0.66 meters, given that L_{corr} is 2 cm, if the fundamental mode is resonating in the tube.

163.0000

Question 4

0 / 2 pts

(a) Fundamental: $f_1 = \dfrac{v}{4L}$

$L = \dfrac{\lambda}{4}$

Closed end is always a displacement node.

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(b) Third harmonic: $f_3 = 3\dfrac{v}{4L} = 3f_1$

$\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$

$L = 3\dfrac{\lambda}{4}$

(c) Fifth harmonic: $f_5 = 5\dfrac{v}{4L} = 5f_1$

$\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$ $\dfrac{\lambda}{4}$

$L = 5\dfrac{\lambda}{4}$
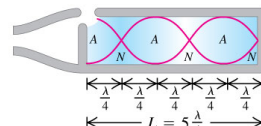
From the image above, determine the wavelength of the third harmonic in terms of the length L of the tube.

λ = 4L/f

Question 5

0 / 2 pts

After taking your measurements in the lab you find that the speed of sound in air is 337.1 m/s. Calculate the theoretical speed of sound in air in a room at $24^\circ C$. Report the percent difference between the measured and theoretical speed of sound in air.

345.9000

Quiz Score: **4** out of 10