

AP Physics 1

Sound Problem Answers

(using $v = 340 \frac{\text{m}}{\text{s}}$)

- 1.) $f_2 = 425 \text{ Hz}$ 2.) $L = 1.42 \text{ m}$ 3.) a.) $f_1 = 85 \text{ Hz}$, $f_2 = 170 \text{ Hz}$, and $f_3 = 255 \text{ Hz}$
b.) $f_1 = 42.5 \text{ Hz}$, $f_3 = 127.5 \text{ Hz}$, and $f_5 = 212.5 \text{ Hz}$
- 4.) $L = 0.567 \text{ m}$ 5.) $L = 0.283 \text{ m}$ 6.) $L = 0.425 \text{ m}$ 7.) $f_1 = 200 \text{ Hz}$
- 8.) $f_1 = 800 \text{ Hz}$ 9.) $L = 0.85 \text{ m}$ 10.) $L = 0.425 \text{ m}$
- 11.) $L = 0.125 \text{ m}$, 0.375 m , 0.625 m , and 0.875 m 12.) a.) $f_1 = 80 \text{ Hz}$ b.) $L = 2.125 \text{ m}$
- 13.) a.) closed pipe b.) $f_1 = 262 \text{ Hz}$ and $L = 0.324 \text{ m}$
- 14.) the mosquito is flying away from you 15.) the person in the van hears a higher pitch