

Q1 - Answer = c

Q2 - Problem A - Last name A-K

A piano key produces 3 beats/second when it is played along with a tuning fork of frequency 256 Hz. It is noted that the beat frequency increases when the string is tightened. What is the frequency of the string?

A. 250 Hz $f = |f_f - f_p| = 3$ and $f_f = 256$

B. 253 Hz Thus $f_p = 259$ Hz or 253 Hz

C. 259 Hz Since $v = f \lambda = (T/\mu)^{1/2}$, f increases with T and as beat

D. 262 Hz frequency increases, f_p moves away from f_f . Thus

E. 254.5 Hz $f_p = 259$ Hz

Q1 - Answer = c

Q2 - Problem B - Last Name L-Z

- A tuning fork with frequency 400 Hz produces 2 beats/second when struck along a guitar string. When the string is tightened, it is noted that the beat frequency decreases. What is the frequency of vibration of the guitar string?

A. 396 Hz

$$f = |f_f - f_p| = 2 \text{ and } f_f = 400 \text{ Hz}$$

B. **398 Hz**

Thus $f_p = 398 \text{ Hz}$ or 402 Hz

C. 399 Hz

Since $v = f \lambda = (T/\mu)^{1/2}$, f

D. 402 Hz

increases with T and as beat frequency, f_p moves toward f_f .

E. 404 Hz

Thus $f_p = 398 \text{ Hz}$