

Answer on question #67930, Physics / Mechanics | Relativity

Question two tuning forks P and Q give 4 beats per sec. on loading Q slightly with wax ,we get 3 beats per sec.what is the frequency of Q before and after loading if the frequency of P is 512 Hz?

Solution When we have beat (interference) of two forks, that the frequency of beat is equal to

$$\nu = \frac{f_1 - f_2}{2}$$

where f_1 and f_2 are frequencies of forks. Hence, before loading we have

$$f_Q = 2\nu_1 + f_P = 2 \cdot 4 + 512 = 520 \text{ Hz}$$

after loading frequency of Q is

$$f_Q = 2\nu_2 + f_P = 2 \cdot 3 + 512 = 518 \text{ Hz}$$