the number of oscillations per second is slightly different for

answer: if we have two sources at slightly different frequencies
net result, an oscillation with a slowly pulsating intensity.
y is to the subject!

formulate this result mathematically also. Suppose, for ex-
two waves, and that we do not worry for the moment about
ns, but simply analyze what arrives at P. From one source, let
ve $\cos \omega_1 t$, and from the other source, $\cos \omega_2 t$, where the two
e same. Of course the amplitudes may not be the same, either,
e general problem later; let us first take the case where the
. Then the total amplitude at P is the sum of these two cosines.
udes of the waves against the time, as in Fig. 48–1, we see that

5 Hz

4 Hz

$\cos 10\pi t$

$\cos 8\pi t$

48–1
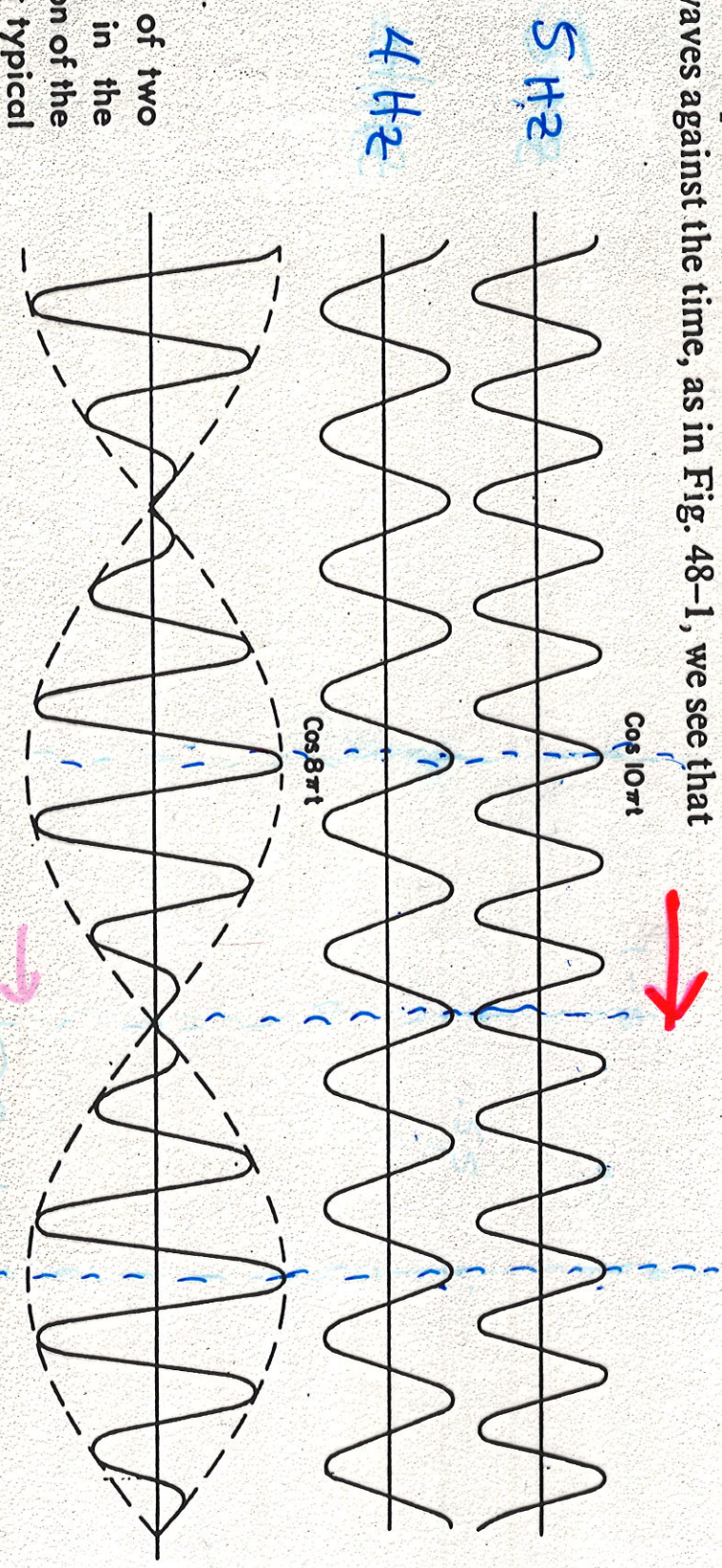
superposition of two
frequencies in the
cise repetition of the
"beat" is not typical