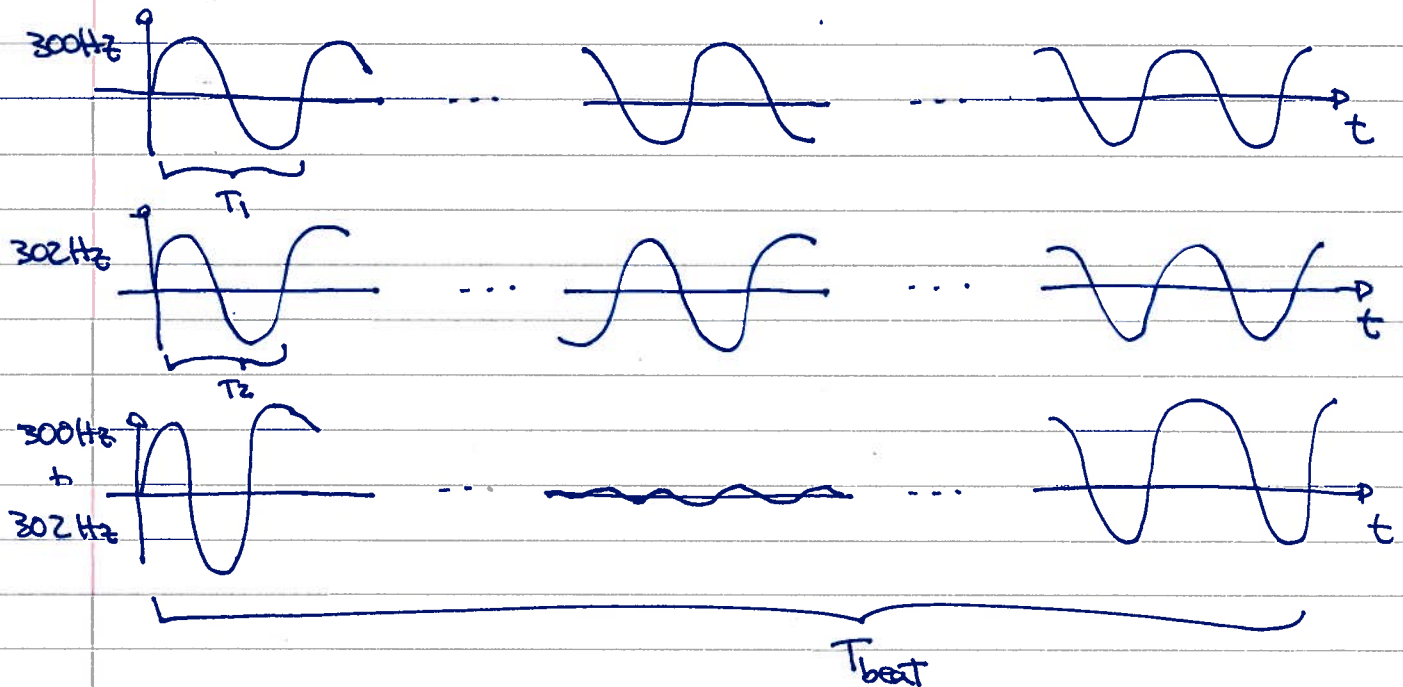1) One way of thinking about this problem is to plot the two interfering waves and their sum (exhibiting the beats)

Let us call the time between two consecutive beats T_{beat}. In that time the 300 Hz wave will go through a number of periods given by $N_1 = \dfrac{T_{beat}}{T_1} = T_{beat} \, 300\,Hz$. Similarly, the number of periods the other sound will go through is $N_2 = \dfrac{T_{beat}}{T_2} = T_{beat} \, 302\,Hz$. But $N_2 = N_1 + 1$. Thus,

$$T_{beat} \, 302\,Hz = T_{beat} \, 300\,Hz + 1$$

$$T_{beat} \, (302\,Hz - 300\,Hz) = 1 .$$

$$T_{beat} = \frac{1}{2\,Hz} = 0.5 \; sec.$$

The frequency of the beats is $f_{beat} = \dfrac{1}{T_{beat}} = 2\,Hz$

For generic frequencies f_1 and f_2 we can repeat the argument:
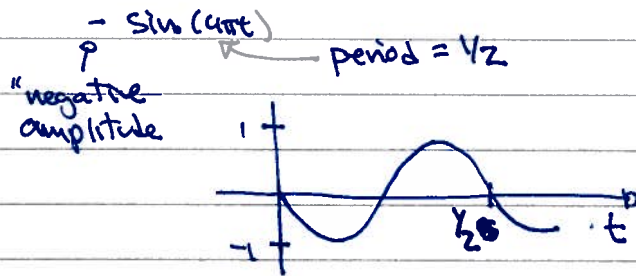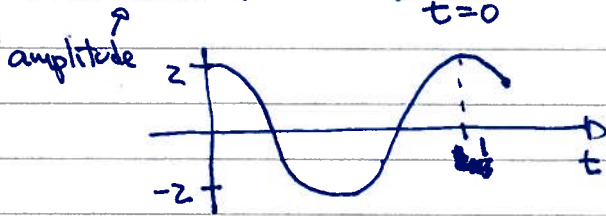
$$T_{beat} \, f_1 = T_{beat} \, f_2 + 1$$

$$\Downarrow$$

$$T_{beat} \, (f_1 - f_2) = 1$$

$$\Downarrow$$

$$f_{beat} = \frac{1}{T_{beat}} = f_1 - f_2$$

2) $\quad 2 \sin(2\pi t + \pi/2) \underset{t=0}{\longrightarrow} 2 \sin(\pi/2) = 2$

amplitude

$- \sin(4\pi t)$

"negative amplitude

period $= 1/2$

$2 \sin(2\pi t + \pi/2) - \sin(4\pi t)$
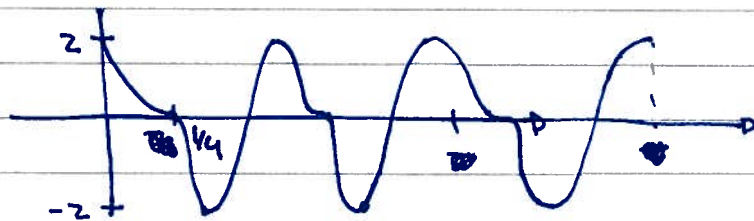
At $t=0$ we have no interference since the amplitude of the second wave is zero (sorry for that!)

3) I'll make some reasonable assumptions here:

annual middle-class income is about $100.000

4 members of the band $\Rightarrow$ $400.000 income/year

30 years income (not Thinking about retirement!) $\Rightarrow$ $400.000 × 30 = $12.000.000

price per CD about $20

cut the band keeps $20 × 20% = $\frac{$20}{5}$ = $4

number of CD's = $\frac{$12.000.000}{$4}$ = 3.000.000 albums

This is probably a low-ball estimate as the cut of the artist was over estimated (as well as the price of the CD). The point of the exercise is not to discourage would-be recording artists; they make much more money on live performances.