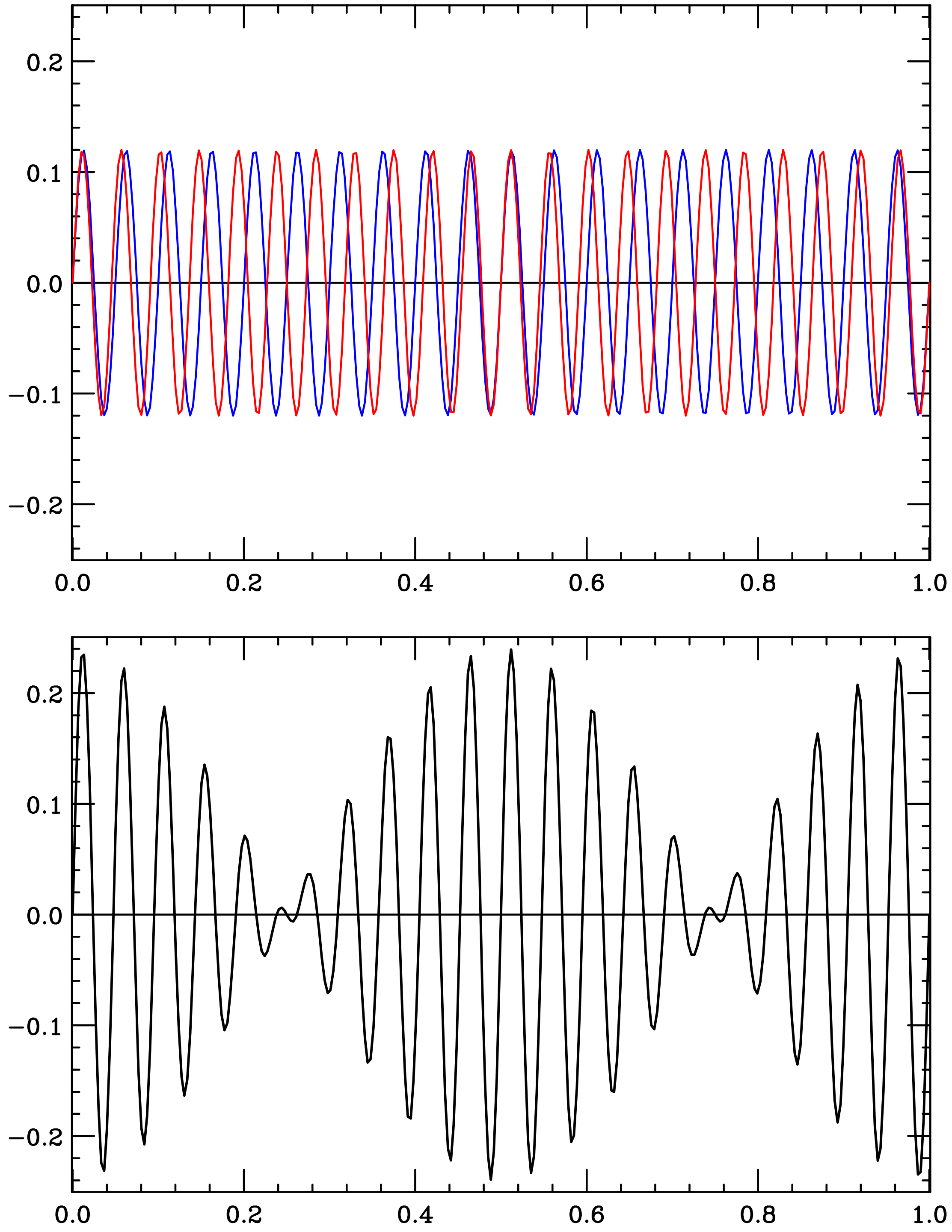
Example of beats:

$$x = 0.12\ \sin(360 \cdot 20 \cdot t)\ +\ 0.12\ \sin(360 \cdot 22 \cdot t)$$

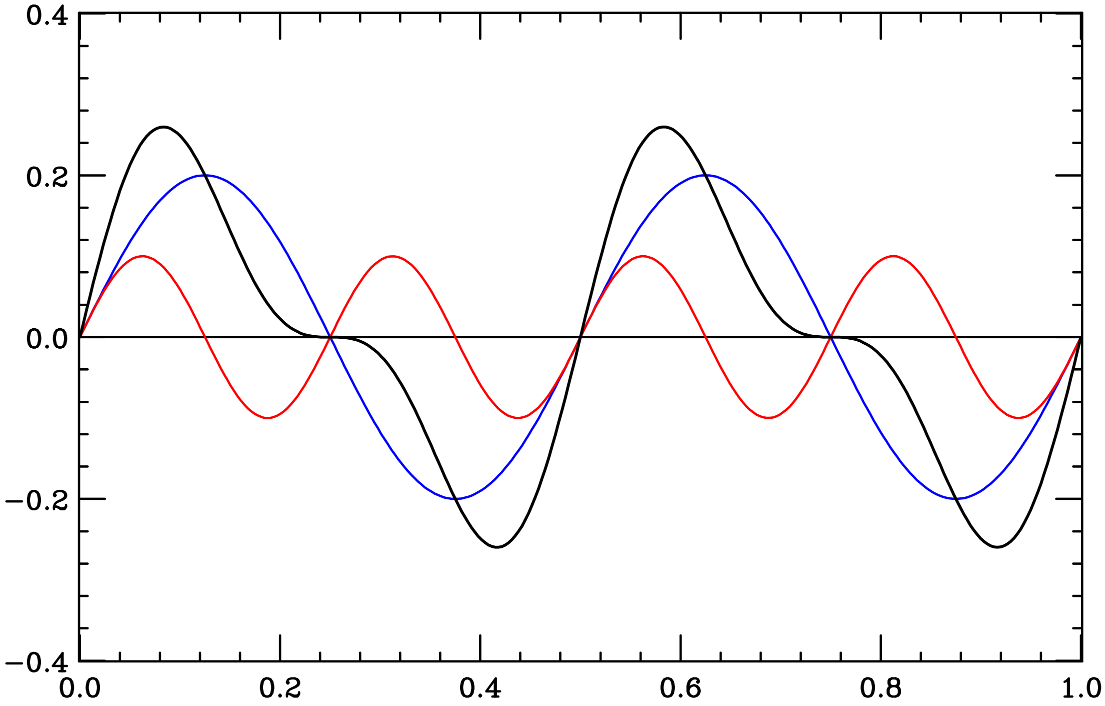
Frequency	20 Hz	22 Hz
Amplitude	.12	.12
Phase	0	0



Adding first and second harmonic:

$$x = 60\ \sin(360 \cdot 200 \cdot t)\ +\ 30\ \sin(360 \cdot 400 \cdot t)$$

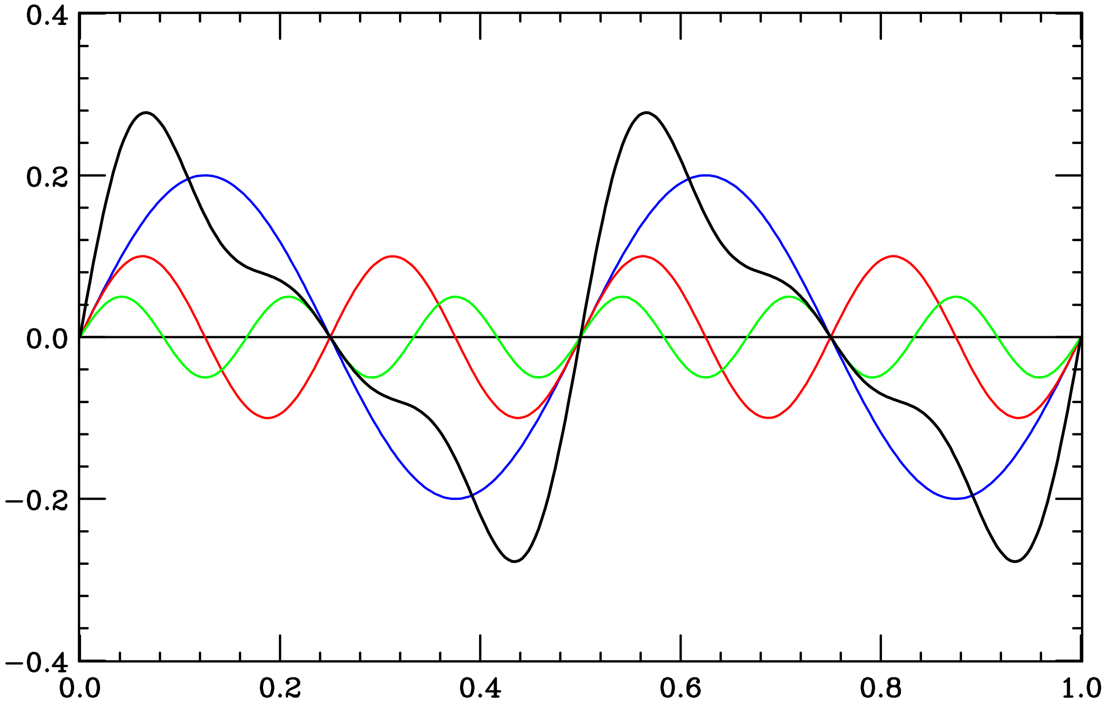
Frequency	200 Hz	400 Hz
Amplitude	60	30
Phase	0	0



Adding first, second, and third harmonic:

$$x = 60\ \sin(360 \cdot 200 \cdot t)\ +\ 30\ \sin(360 \cdot 400 \cdot t)\ +\ 20\ \sin(360 \cdot 600 \cdot t)$$

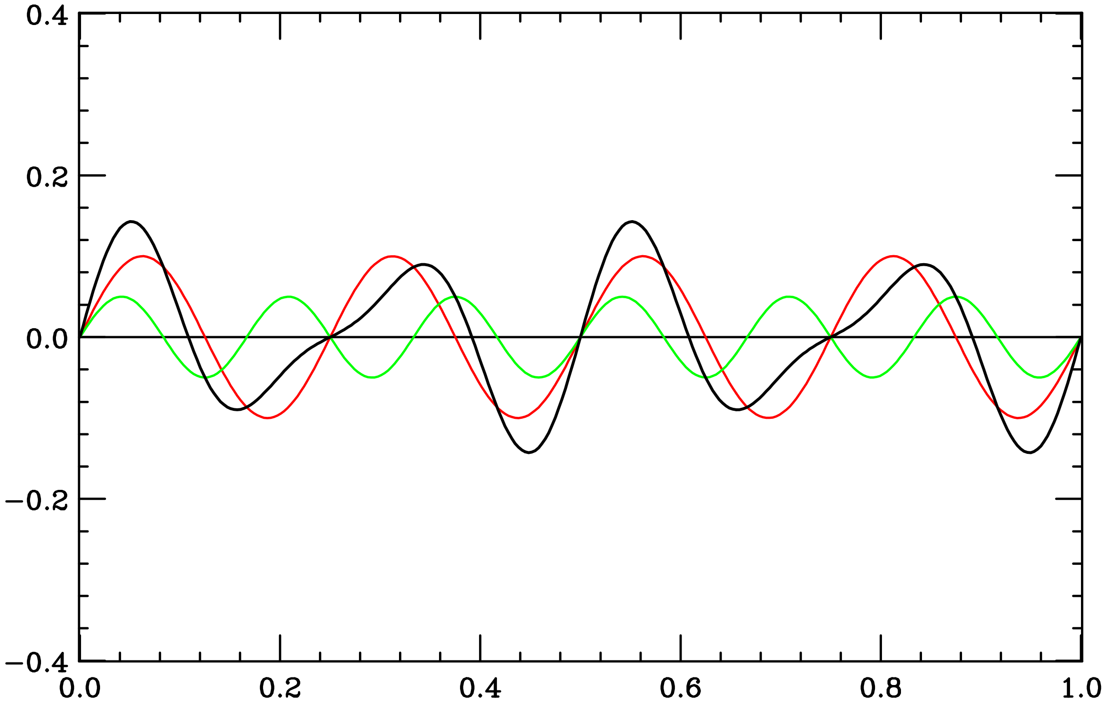
Frequency	200 Hz	400 Hz	600 Hz
Amplitude	60	30	20
Phase	0	0	0



Adding second and third harmonic:

$$x = 30\ \sin(360 \cdot 400 \cdot t)\ +\ 20\ \sin(360 \cdot 600 \cdot t)$$

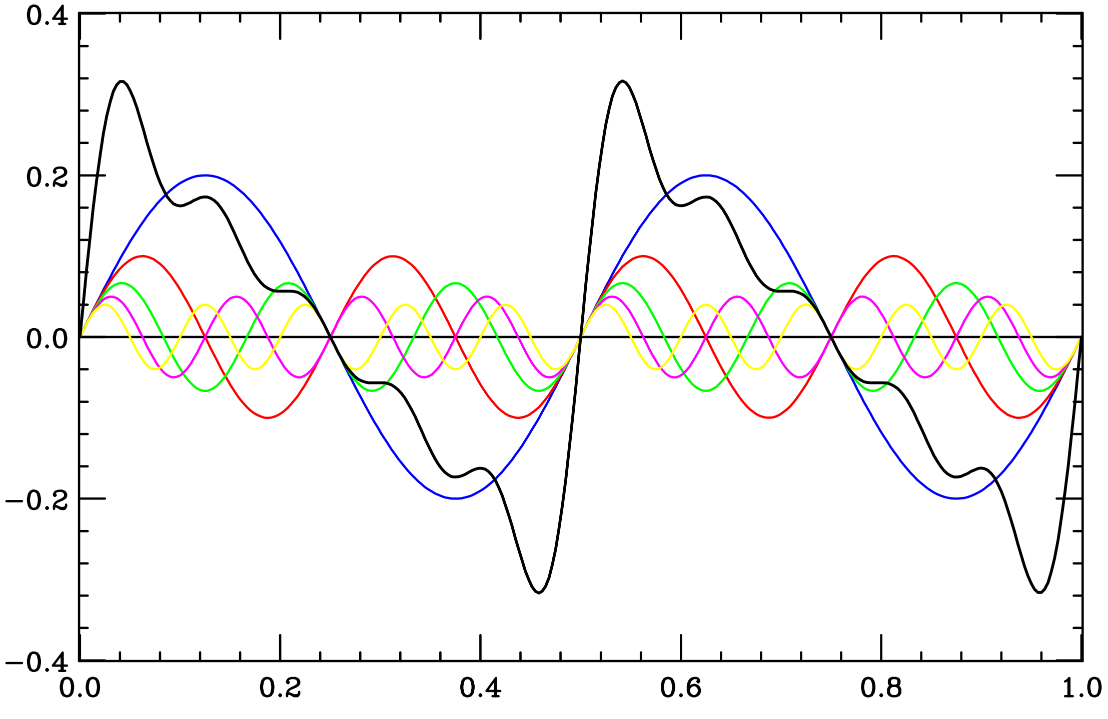
Frequency	400 Hz	600 Hz
Amplitude	30	20
Phase	0	0



Adding harmonics 1, 2, 3, 4, 5:

$$
\begin{aligned}
x = {} & 60 \sin(360 \cdot 200 \cdot t) \\
& + 30 \sin(360 \cdot 400 \cdot t) \\
& + 20 \sin(360 \cdot 600 \cdot t) \\
& + 15 \sin(360 \cdot 800 \cdot t) \\
& + 12 \sin(360 \cdot 1000 \cdot t)
\end{aligned}
$$

Frequency	200 Hz	400 Hz	600 Hz	800 Hz	1000 Hz
Amplitude	60	30	20	15	12
Phase	0	0	0	0	0



Adding harmonics $1, 2, \ldots, 10$:

$$\begin{aligned} x = {} & 60\ \sin(360 \cdot 200 \cdot t) \\ & + 60/2\ \sin(360 \cdot 400 \cdot t) \\ & + 60/3\ \sin(360 \cdot 600 \cdot t) \\ & + 60/4\ \sin(360 \cdot 800 \cdot t) \\ & + 60/5\ \sin(360 \cdot 1000 \cdot t) \\ & + 60/6\ \sin(360 \cdot 1200 \cdot t) \\ & + 60/7\ \sin(360 \cdot 1400 \cdot t) \\ & + 60/8\ \sin(360 \cdot 1600 \cdot t) \\ & + 60/9\ \sin(360 \cdot 1800 \cdot t) \\ & + 60/10\ \sin(360 \cdot 2000 \cdot t) \end{aligned}$$