EE 230 — HW 2.19 Name_____

A signal is applied to the input of a first-order low-pass filter having $G_o = 5$ and $f_c = 1000$ Hz ($\omega_c = 6283$ rad/s),

$$v_i(t) = (1\text{ V})\sin\left[\left(1885\text{ rad/s}\right)t\right] + (1\text{ V})\sin\left[\left(6283\text{ rad/s}\right)t\right] + (1\text{ V})\sin\left[\left(18{,}850\text{ rad/s}\right)t\right]$$

(In other words, the input consists of three sinusoids at frequencies of 300 Hz, 1000 Hz, and 3 kHz.

Calculate the form of the output voltage signal. Don't forget about phase shifts!

$v_o(t)$ = _____

Write your answers — and whatever work will fit — on this sheet. Staple any sheets with additional work behind.