For the circuit above, \( V_i = 10 \text{ mV} \):

- What is \( V_o \) if the amplifier is ideal?
- What is \( V_o \) if the offset voltage, \( V_{OS} = 10 \mu \text{V} \)?
- What is \( V_o \) if the bias current, \( I_B = 10 \text{ nA} \)?
The op amp is ideal, except $f_T (= \text{Gain-Bandwidth})$ is 120 kHz.

For the circuit above, $V_i = (20 \text{ mV}) \cos(2\pi ft)$:

- What is the peak-to-peak amplitude of $V_o$ if $f = 3 \text{ kHz}$?
- What is the peak-to-peak amplitude of $V_o$ if $f = 30 \text{ kHz}$?
For the circuit above:

- **What type of filter is this?** (high pass, low pass, band pass, band stop)
- Sketch the amplitude of $\frac{V_o}{V_i}$ as a function of frequency. Label the passband, stopband and roll-off rate.
- What is the cut-off frequency ($f_c$) and damping constant ($\zeta$)?