# Electronics Sketching Op Amp Circuit Inputs and Outputs

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$$= -4$$

For an inverting amplifier,

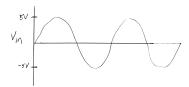
$$V_o/V_i = -R_f/R_i$$

• So, for our circuit,

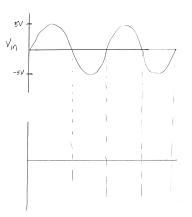
$$V_o/V_i = -8k\Omega/2k\Omega$$

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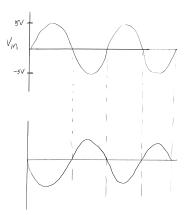
The gain is −4.



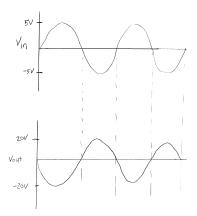
Sketch  $V_{in}$ .



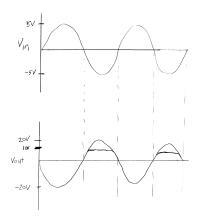
Create axes for  $V_{out}$ . (Use critical points for alignment.)



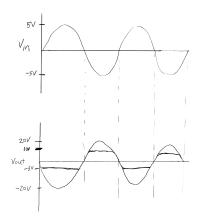
Sketch shape of  $V_{out}$  with sign of the gain. (inverted in this case.)



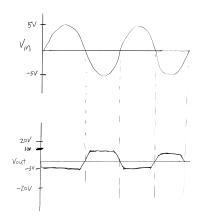
Use magnitude of gain to make scale for  $V_{out}$ . (magnitude of 4.)



Adjust top of waveform for positive rail. (+10V)



Adjust bottom of waveform for negative rail. (-5V)



Clean up by removing obsolete lines.

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