THE FOLLOWING ITEMS ARE REQUIRED:
- Student's work reproducible from notebook.
- Title and date for each lab section.
- Written in ink.
- Student signed every page.
- Student dated every page.

30 pts  PRE-LAB:
- 10 pts (1a)
  - 6 pts Design a circuit to produce Vout = Vin.
- 10 pts (2)
  - 6 pts Design a non-inverting amplifier to produce a gain of 101 V/V.
  - 4 pts Build the non-inverting amplifier on your breadboard.
- 10 pts (2a)
  - 5 pts Description of slew-rate.
  - 5 pts Description of clipping.

30 pts  EXPERIMENT 1:
- 5 pts 1.
  - 1 pt Measurement of V_{out}.
  - 1 pt Measurement of current through the 1k “load” resistor.
  - 3 pts Describe in detail where the additional current comes from.
- 15 pts 2.
  - 10 pts Created Bode magnitude plot.
  - 5 pts Rough sketch of the Bode magnitude plot with the following points marked:
    - low-frequency value in the flat section, “corner” frequency (f_c), and the downward slope.
- 5 pts 3.
  - 5 pts Comparison of measured f_c and expected f_c.
- 5 pts 4.
  - 5 pts Verification that V_{out} ~ V_s for a reasonable frequency.
50 pts  EXPERIMENT 2:

15 pts  (1b)  Verification of gain (should be 101 V/V) for a low-frequency value.
5 pts  (1c)  -3dB point.
5 pts  (1e)  2 measurements beyond $f_c$ and the slope of the frequency response curve.
5 pts  (1f)
  2 pts  Measurement of the phase shift at $f_c$.
  3 pts  Comparison of the theoretical phase-shift (-45º) to your measured phase-shift.
5 pts  (1g)
  1 pt  Measurement of the gain at 5$f_c$.
  1 pt  Measurement of the gain and phase-shift at 10$f_c$.
  1 pt  Comparison of theoretical gain decrease (factor of 2) to your measured gain decrease.
  2 pts  Comparison of theoretical phase-shift of -90º at 10$f_c$.

5 pts  (2a)
  1 pt  Sketch of the triangular waveform and indication of the slewing on the sketch.
  1 pt  Measurement of the slope of the triangular waveform.
  3 pt  Comparison of measured slew-rate to the slew-rate on the data sheet.

5 pts  (2b)
  1 pt  Value for $f_{max}$.
  1 pt  Measurement of the output voltage (Vpp) at $f_{max}$.
  3 pts  Comparison of fmax to the theoretical value of fmax.

5 pts  (3a)
  1 pt  Sketch of the clipping waveform and indication of the clipping on the sketch.
  1 pt  Measurements of the clipping levels L+ and L-.
  3 pts  Comparison of the data-sheet clipping levels to your measured clipping values.

40 pts  EXPERIMENT 3

25 pts  1.
  10 pts  Circuit built correctly.
  15 pts  Circuit works.
8 pts  2.  Description of how the volume-control works.
7 pts  3.  How much current is being pulled away from the power-supply.