1. A negative-feedback amplifier has a closed-loop gain $A_f = 200$ and an open-loop gain $A = 10,000$. What is the feedback factor $\beta$? Assuming that the feedback factor remains the same and a manufacturing error causes a reduction of $A$ to 1,000, what closed-loop gain results?

2. Do Exercise 8.1 (a) through (e) for $A=200$.

3. Consider the noninverting op-amp circuit analyzed in (2). Let the open-loop gain $A$ have a low-frequency value of 10,000 and a uniform -6-dB/octave rolloff at high frequencies with a 3-dB frequency of 200Hz. Find the low-frequency gain and the upper 3dB frequency of a closed-loop amplifier with $R_1 = 1k\Omega$ and $R_2=19k\Omega$.

4. In a feedback amplifier for which $A=100,000$ and $A_f = 100$, what is the gain-desensitivity factor?

5. An amplifier has a dc gain of 1,000 V/V, a single high-frequency pole at 10kHz, and a single low-frequency pole at 150Hz. Negative feedback results in reducing the midband gain to 100V/V. What are the upper and lower 3-dB frequencies (in Hz) of the closed-loop gain?

6. A series-shunt feedback amplifier seen in Fig. 8.4(a) and using an ideal basic voltage amplifier operates with $V_s = 200mV$, $V_f = 95mV$, and $V_o = 9V$. What are the corresponding values of $A$ and $\beta$? Include the correct units for each.

7. A shunt-series feedback amplifier seen in Fig. 8.4(b) and using an ideal basic current amplifier operates with $I_s = 150\mu A$, $I_f = 95\mu A$, and $I_o = 9mA$. What are the corresponding values of $A$ and $\beta$? Include the correct units for each.