# Chapter 5, Problem 1.

The equivalent model of a certain op amp is shown in Fig. 5.43. Determine:

- (a) the input resistance.
- (b) the output resistance.
- (c) the voltage gain in dB.



Figure 5.42 For Prob. 5.1.

## Chapter 5, Problem 9.

Determine  $v_o$  for each of the op amp circuits in Fig. 5.48.



Figure 5.48 for Prob. 5.9

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# Chapter 5, Problem 17.

Calculate the gain  $v_o/v_i$  when the switch in Fig. 5.56 is in: (a) position 1 (b) position 2 (c) position 3



Figure 5.56

#### Chapter 5, Problem 34.

Given the op amp circuit shown in Fig. 5.72, express  $v_o$  in terms of  $v_1$  and  $v_2$ .



Figure 5.72

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# Chapter 5, Problem 39.

For the op amp circuit in Fig. 5.76, determine the value of  $v_2$  in order to make  $v_o = -16.5$  V.



Figure 5.76