

Homework Assignment No. 4Due on Monday, September 13, 2004

Problems in () refer to the first edition.

- 1.) Problem 13.52 (13.44) of the text.
- 2.) Problem 13.57 (13.50) of the text.
- 3.) Problem 13.64 (13.57) of the text.
- 4.) An NPN BJT common-emitter inverting amplifier is shown. Assume the parameters of the transistor are $\beta_F = 100$, $V_T = 25\text{mV}$, and $V_A = 100\text{V}$. (a.) If $I_C = 0.5\text{mA}$ and $V_{CE} = 3\text{V}$, find the small signal model parameter values for g_m , r_{π} and r_o . (b.) Find an algebraic expression for the small signal voltage gain, v_{out}/v_{in} . (c.) Numerically evaluate the small signal voltage gain, v_{out}/v_{in} .

