Problem 1

Modify your Mathcad file of HW #1 to include tolerance in $V_{cc}$ and $V_{be}$.

Problem 2

Bias the circuit above such that

$10mA \leq I_c \leq 14mA$ for

$50 \leq B \leq 350$

$30 \leq V_{cc}$

$0.6 \leq V_{BE} \leq 0.8$

$14.5 \leq V_{cc} \leq 15.5$
a) Bias Q3 at $V_{CE} = 6V$ and $I_c = 1mA$. Ignore base currents. Assume all BJTs are matched. Choose standard 5% resistors for $R_x$ & $R_c$

b) Calculate $I_{c3\ max}$ and $I_{c3\ min}$ assuming resistors have ±5% tolerance and $50 \leq B \leq 350$. Assume all BJTs are matched but do not ignore base currents.
Problem 4

Find the midband gain \( \frac{V_o}{V_s} \)