HW Due November 10

Q1 Using an NPN, ground the base, tie the collector to a +9V source, place a resistor, R, in the emitter and tie it to a -9V source (this setup should look familiar):

   a) Let R=5.6kΩ. Find the Q-point.

   b) What value of R is required to get a current of ~100µA?

Q2 Design a circuit with “4 Resistor Biasing” for an NPN transistor with a Q-point of (185µA, 4.93V) using one +12V power supply, $R_E = 16kΩ$ and $R_C = 22kΩ$. (Basically, find $R_1$ and $R_2$.)

Q3 Using the same circuit layout shown in class with $V_{CC}=12V$, $V_{EQ}=4V$, $R_{EQ}=12kΩ$, $R_C = 56kΩ$ (previously it was 22kΩ) and $R_E = 16kΩ$. What is the Q-point? Discuss results.