Lab 7
NPN Transistor Bias, Q-point

1. Assemble the circuit in Fig. 1:

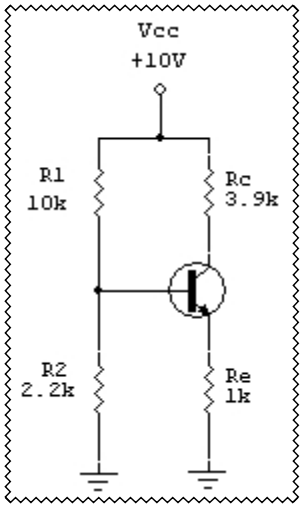

Fig.1

2. Calculate the following values:

V_B = _____

V_E = _____

$I_E \doteq I_C$ = _____

V_{RC} = _____

V_C = _____

V_{CE} = _____

V_{BC} = _____

(This step is optional in some books.)

Is the transistor active?

What is the Q-point?

3. Additional calculations:

Cut-off: V_{CE} = _____

Saturation: I_C = _____

4. Using the values from the previous calculations, draw the load line and plot the Q-point in Fig. 2:

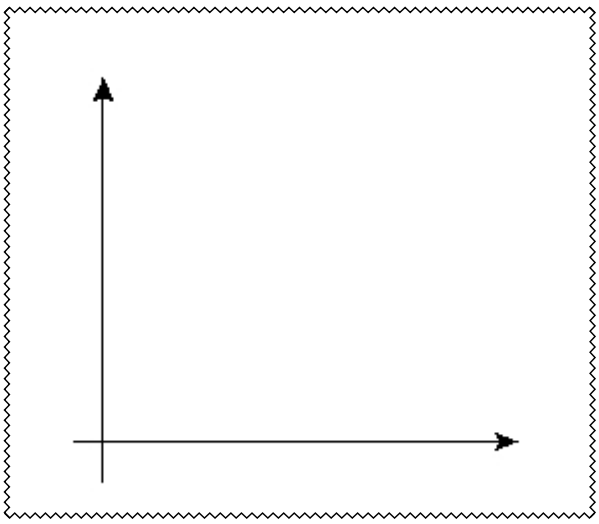
Fig. 2

5. Measure the values calculated in step 2 and comment on how well the values match.

V_B = _____

V_E = _____

$I_E \doteq I_C$ = _____

V_{RC} = _____

V_C = _____

V_{CE} = _____

V_{BC} = _____