



Sheet 3 Bipolar Junction Transistor

Problem (1)

For the circuits shown on Figures 1 and 2 find all the node voltages and branch currents ($\beta = 100$ and $V_{be} = 0.7$ V). In figure 1 what happen if the resistance $R_c = 2.3$.

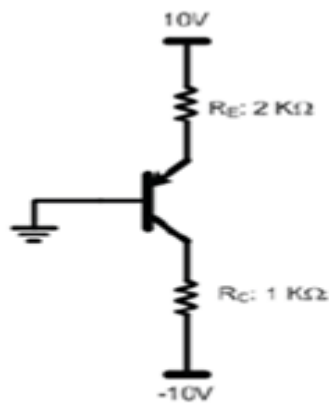


Fig 1

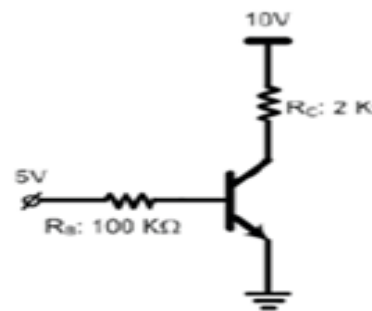


Fig 2

Problem (2)

For the circuit shown in figure 4, find the highest value of V_b which keeps the transistor in active mode.

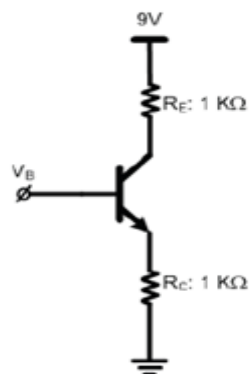


Fig 4

Problem (3)

For the circuit shown in figure 5, if $V_E = 1V$. Find: V_B , I_B , I_E , I_C , V_C and β .

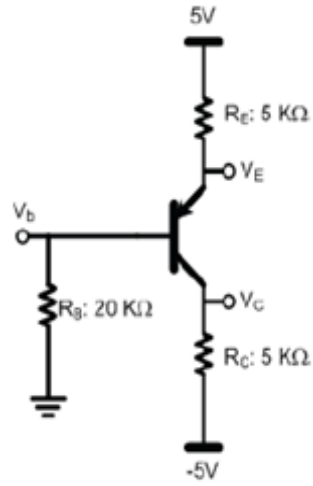


Fig 5

Problem (4)

For the circuit shown in figure 6, find the labeled node voltages and all the branch currents.

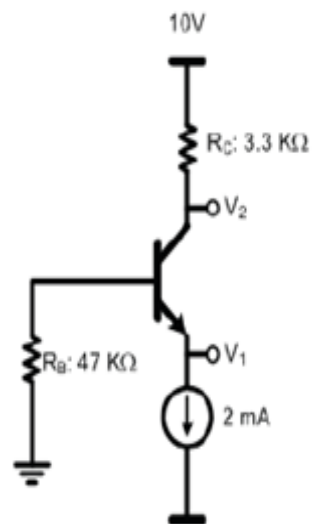


Fig 6

Problem (5)

For the circuit shown in figure 7, find all the node voltages and currents.

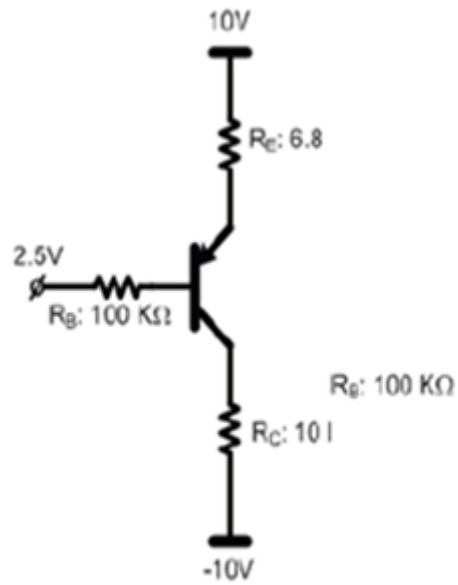


Fig 7

Problem (6)

For the circuit shown in figure 9, find the value of R_C which makes $V_C = 5\text{V}$.

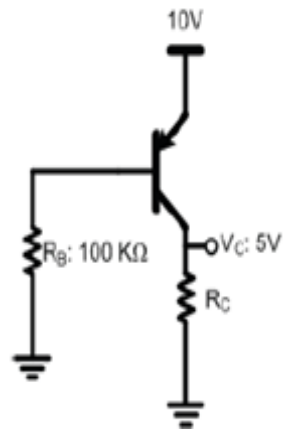


Fig 9