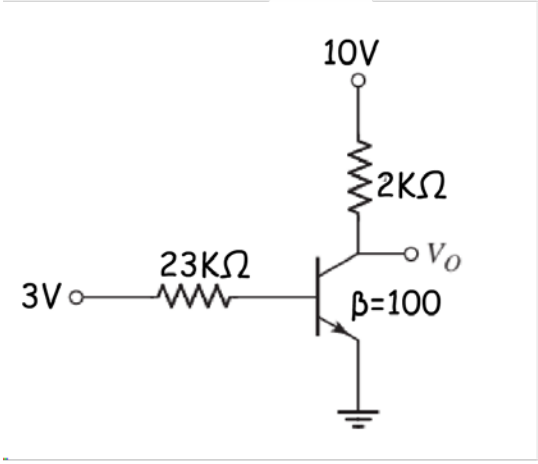
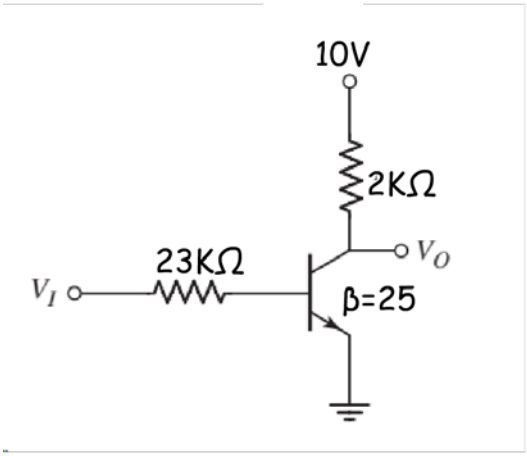
1. For a given transistor circuit, the value of V_o is approximately given by _____ Volts.



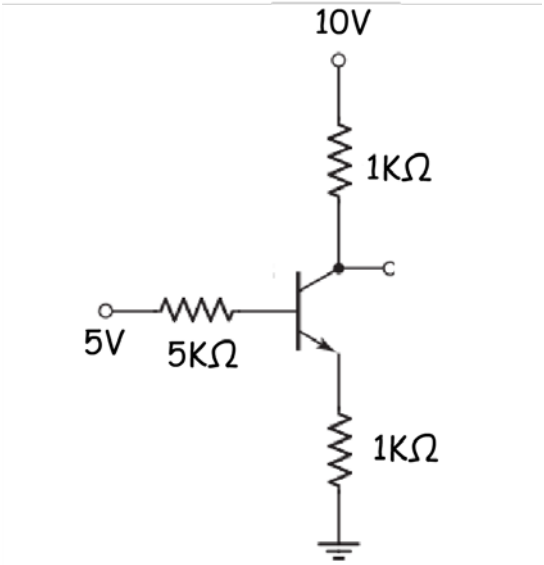
Ans: Any value in the range of 0 and 0.4

2. In the circuit shown below, the input waveform V_I is given by a square pulse of amplitude $3V$ and zero mean value, that is the input oscillates between $+3V$ and $-3V$. The mean value of the output V_0 in that case is given by _____ Volts



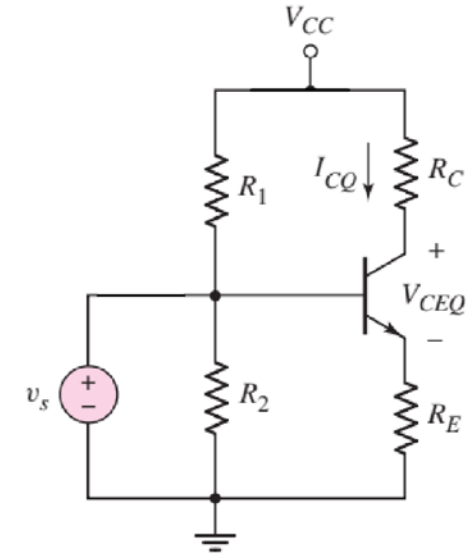
Ans: 7.5

3. In the circuit shown below, if β of the transistor changes from 100 to 150, then the percentage variation in collector current is _____ %



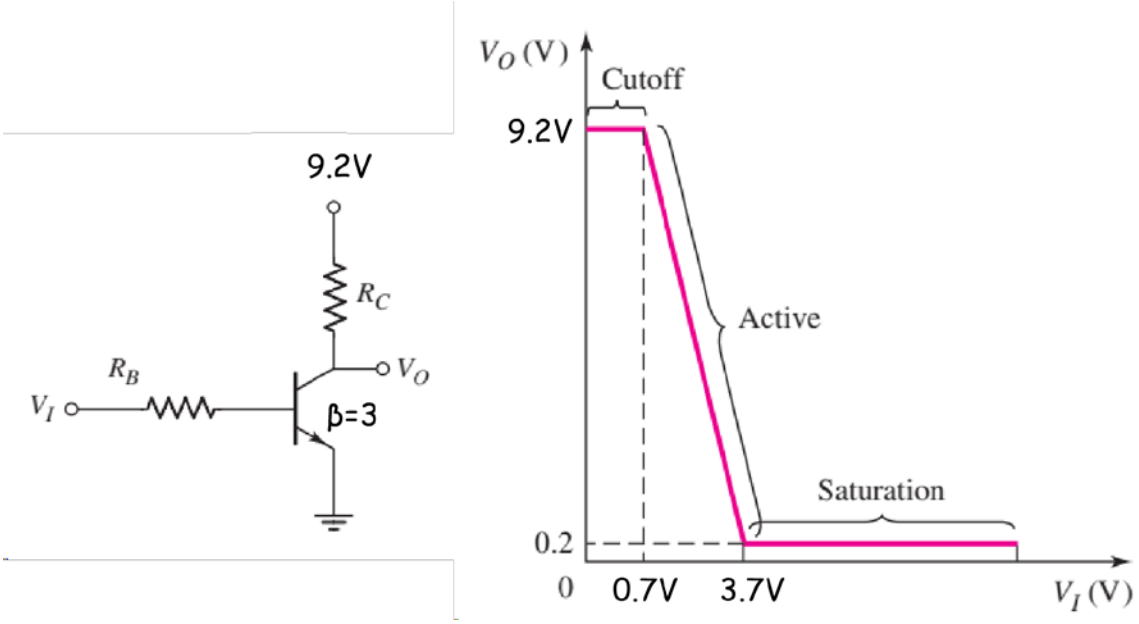
Ans: Any value in the range of 1.85 and 2

4. In the Fig. below, v_s and V_{CC} are DC voltage sources. If $V_{CC} = 20V, v_s = 5V, R_1 = R_2 = R_E = R_C = 2K\Omega$ and $\beta = 50$, then the value of V_{CEQ} is given by _____ Volts



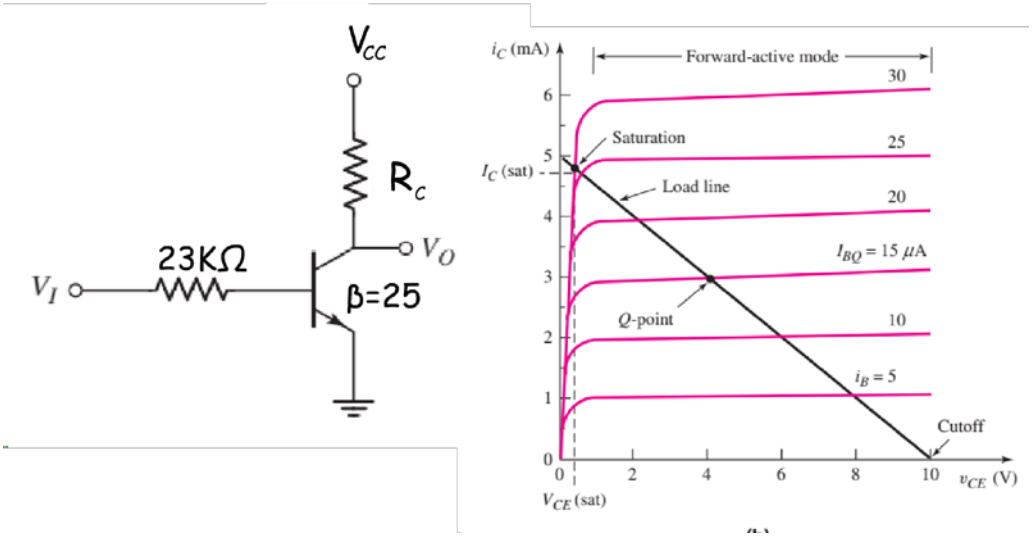
Ans: Any value in the range of 11 and 12

5. If the following circuit on the left has the input-output voltage graph on the right, then the value of R_C/R_B is _____



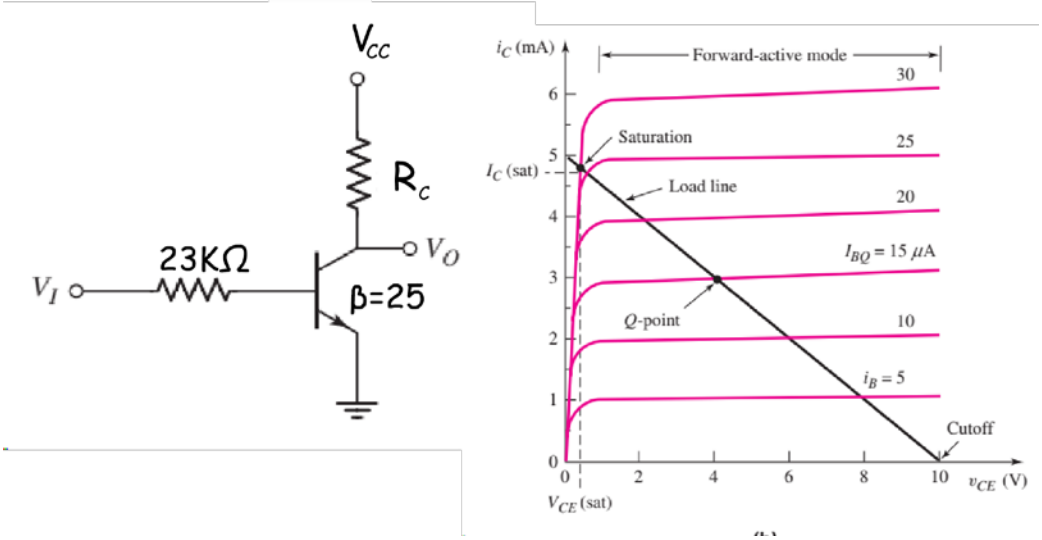
Ans: 1

6. For the following circuit in the left and the load line on the right, the value of V_{CC} is _____ Volts



Ans: 10

7. For the following circuit in the left and the load line on the right, the value of R_C is _____ $k\Omega$



Ans: 2

8. If β =4 for a transistor and the base current in the forward active mode is $I_B = 20\mu A$, then the emitter current is given by **100** _____ μA

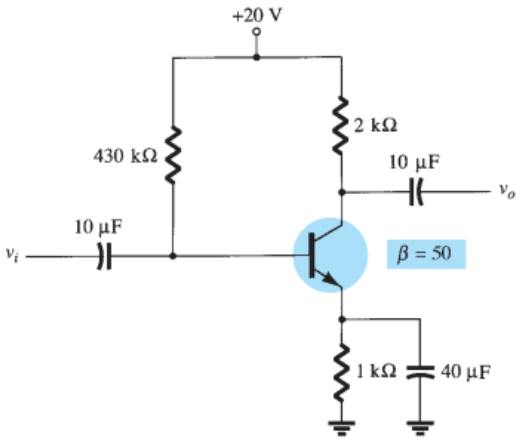
9. For a BJT, β=1. If β is doubled, then the emitter current will increase by a factor of ___**1.5**_____

10. For common emitter circuit with a fixed bias, R_B= 220 kΩ, R_c= 2kΩ, V_{CC}= 10 V, V_{BE} (on)= 0.7V, and β =200. If the input voltage applied at the base terminal is 4 V, then the power dissipated in the transistor is _____ mW.

Ans: Any value between 12 to 13

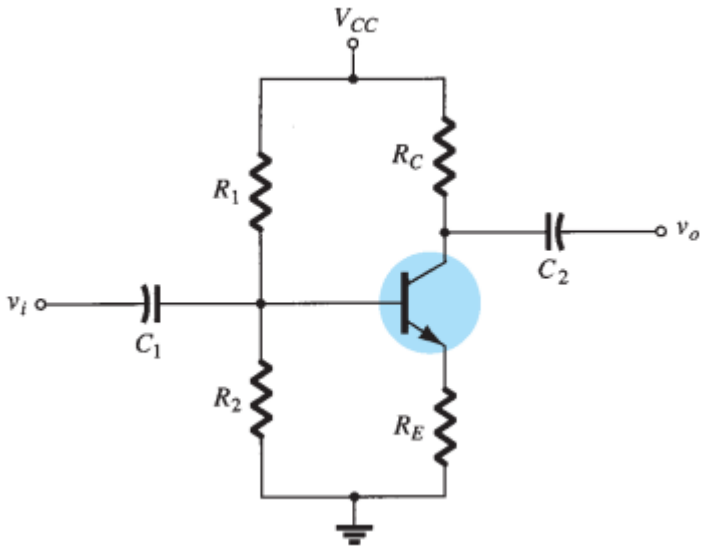
11. For common emitter circuit with a fixed bias, R_B= 220 kΩ, R_c= 2kΩ, V_{CC}= 10 V, V_{BE} (on)= 0.7V, If the input voltage applied at the base terminal is 8 V and V_{CE} (sat) =0.2 V, then value of common-emitter current gain, β is_**74**___ so that the transistor is now set into the forward active region.

12. For the given circuit, the output voltage (V_{CE}) is _____V



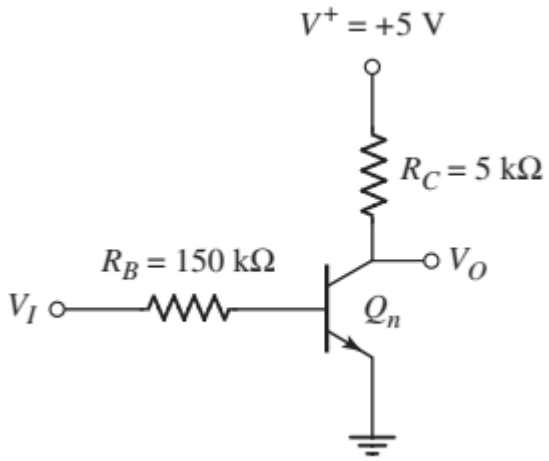
Ans: Any value between 13.9 and 14.2

13. For the circuit given below, V_{CC}= 10 V, R_1=56 kΩ, R_2=12.2 kΩ, R_C=2 kΩ, R_E=0.4 kΩ, V_{BE}(on) =0.7 V, and β=100. If the V_{CEQ} =0.5 V_{CC}, the collector current at the Q-point will be _____mA.



Ans: Any value in the range of 2.0 and 2.1

14. For the given circuit, the transistor goes into saturation mode if the input voltage is greater than **_1.9**___V. Assume β = 120, V_{BE} (on) =0.7 V and V_{CE} (sat) =0.2 V and the Early voltage is infinite.



15. For the given circuit, the transistor will be in forward active mode if the input voltage is less than **_1.9**___V. Assume β = 120, V_{BE} (on) =0.7 V and V_{CE} (sat) =0.2 V and the Early voltage is infinite.