3 Questions to test for the conduction state of a diode during ON assumption:

1. What is the labelled current direction?($\boldsymbol{P \rightarrow N\ or\ N \rightarrow P}$)
2. Is the calculated current in agreement or disagreement with respect to the labeled diode current?

   $\boldsymbol{+Ve: In\ agreement.}$

   $\boldsymbol{-Ve: In\ disagreement.}$

   If Yes (agreement): Calculated current direction **same** as labelled current.

   If No (disagreement): calculated current direction **opposite** to labelled current.
3. Is this allowed according to diode theory?

   $P \rightarrow N$: allowed, Diode is **ON**.

   $N \rightarrow P$: Not-allowed, Diode is **OFF**.[Diode current doesn't flow from $N \rightarrow P$]

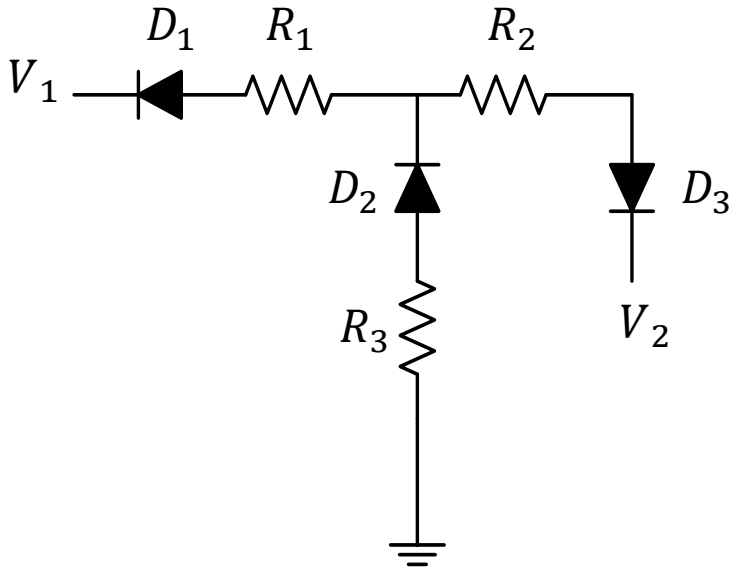
Verifying OFF assumption:

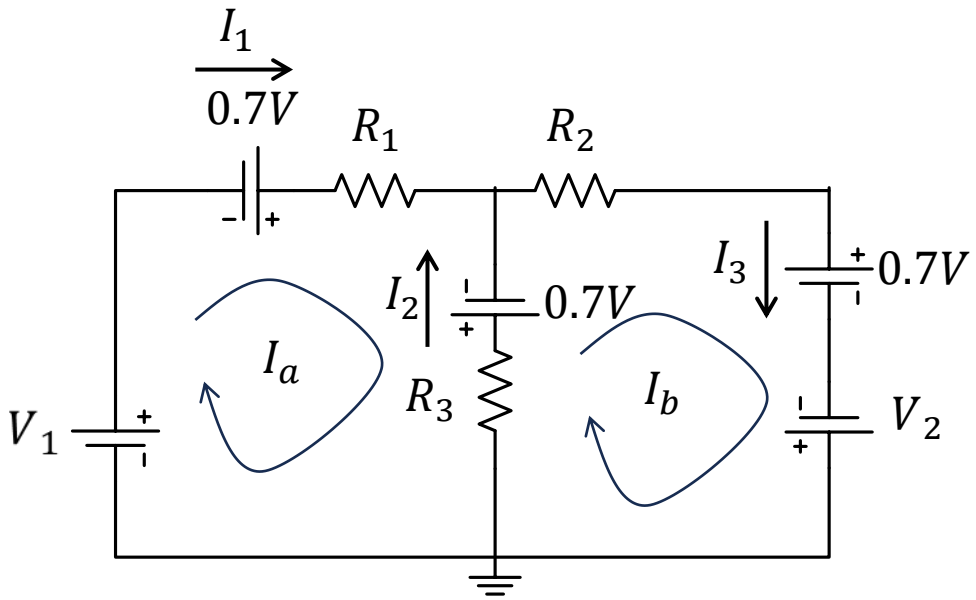
Find $V_P - V_N$

If $V_P - V_N < 0.7V, Diode\ off, assumption\ right.$

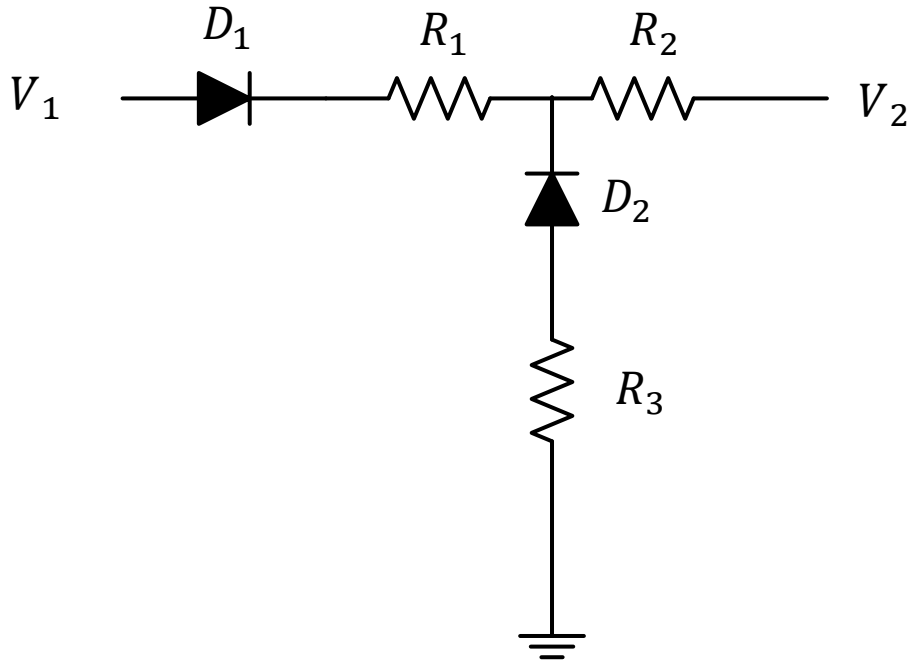
If $V_P - V_N > 0.7V, Diode\ ON, assumption\ wrong$

1. All the diodes in the circuit have been assumed to be ON. Mesh analysis of the circuit finds the currents as $I_a = 1.01\ mA\ and\ I_b = 1.45\ mA$. Calculate the current through the diodes and determine the conduction states of the diodes.

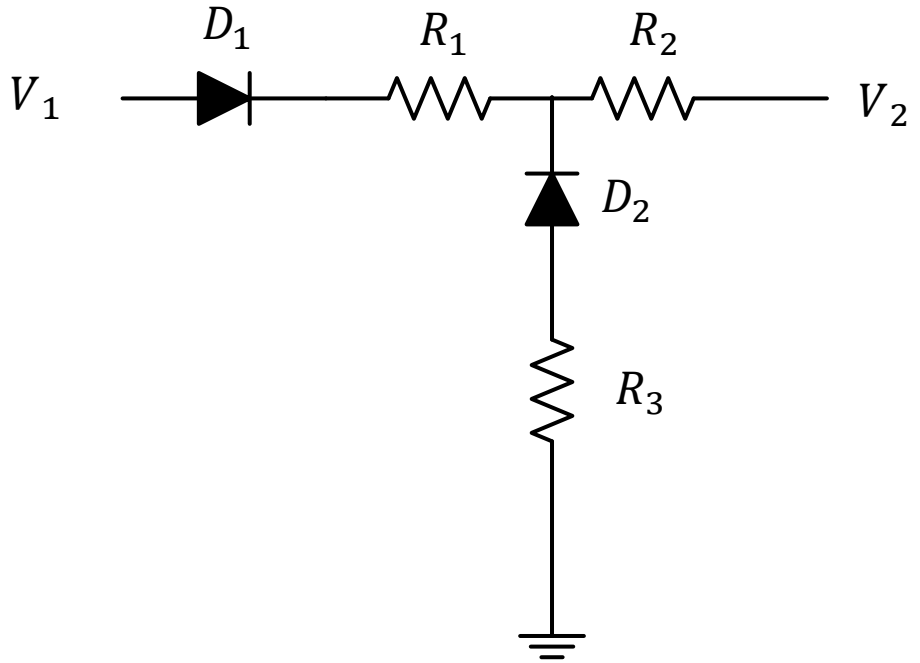




1. Conduction states of the diodes are as follows. $D_1\ OFF, D_2\ ON$. Determine the currents flowing through the diodes. $V_1 = -5V, R_1 = R_2 = R_3 = 2k, \& \ V_2 = -3V$.



1. Conduction states of the diodes are assumed as follows: $D_1\ ON, D_2\ OFF$. Current through D_1 is calculated as $I_1 = 0.675\ mA$. Determine the voltage across D_2 . $V_1 = -5V, R_1 = R_2 = R_3 = 2k, \&\ V_2 = -3V$.



1. Conduction states of the diodes are assumed as follows: $D_1\ ON, D_2\ OFF$. Current through D_1 is calculated as $I_1 = 0.675\ mA$. Justify the assumptions for each diodes. $V_1 = -5V, R_1 = R_2 = R_3 = 2k, \&\ V_2 = -3V$.