LED SERIES RESISTORS

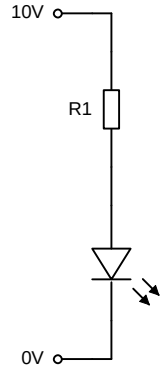
Answer the following questions by using Ohms Law to calculate the required series resistance of R1 in each circuit. Remember to write down the voltages and currents and show the calculations invloved.

The LEDs used have the following parameters:
V_F (Forward voltage) = 3 V
I_F (Forward current) = 20 mA

Question 1:
.
V_R = 7v

I_R = 0.02A

R1 =

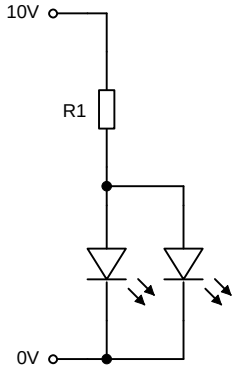


Question 2:

V_R =

I_R =

R1 =

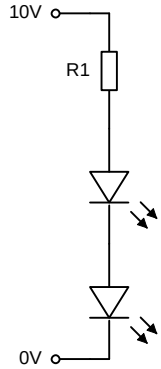


Question 3:

V_R =

I_R =

R1 =



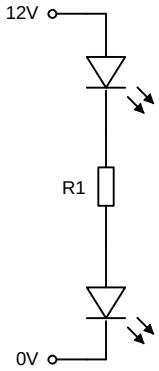
The next 3 circuits are a bit tricky - so think carefully about the voltages and apply principles you have learnt.
Again, V_F = 3 volts,
I_F = 20 mA

Question 4:

V_R =

I_R =

R1 =

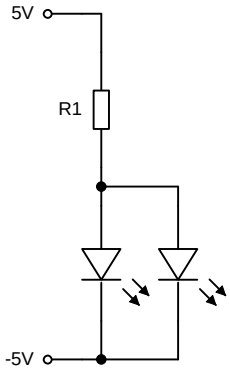


Question 5:

V_R =

I_R =

R1 =

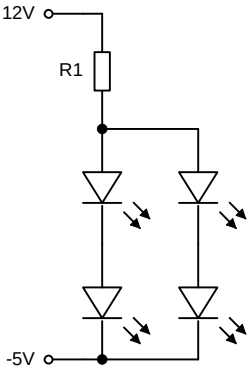


Question 6:

V_R =

I_R =

R1 =



Question 7:
Calculate the Power dissipated in the resistors of questions 2 & 3 in the spaces below. Remember to write down all the values and your calculations.

Q2/	**Q3/**
V_R **=**	V_R **=**
I_R **=**	I_R **=**
P_R **=**	P_R **=**

Which is the most efficient method of lighting 2 LEDs and why?

Question 8:
The circuit below needs a 450 ohm series resistor.

The nearest ***preferred values*** of the E12 resistor series are **390** ohms or **470** ohms.

Which one would you use and why?

Value =

Reason: