

READINGS: Electronics Workbook 2 (ew2.pdf): Pages 51-79, 90.

Armstrong (armstrong.pdf): Chapters 14 - END.

Assignment is due at the beginning of the next class, a one question quiz on this homework occurs after the lecture.

6.A) Of the twenty-one (21) individual FM lawsuits filed in 1954, how many were ultimately victorious for Armstrong?

Try problems 6B – 6D before looking at the Hints Section.

6.B) Find the voltages across the 1Kohm resistors in Figure 6.1.

6.B1) Find V_{R2}

6.B2) Find V_{R4}

6.B3) Find V_{R6}



Figure 6.1 Series-Parallel Resistor Circuit

6.C) Find the currents in **R1**, **R2** and the Diode **D1** in Figure 6.2

6.C1) Find I_{R1}

6.C2) Find I_{R2}

6.C3) Find I_{D1}

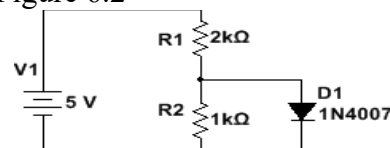


Figure 6.2 Series-Parallel Resistor/Diode Circuit

6.D) For the transistor circuit of Figure 6.3:

If $h_{FE}=10$ (given)

find the collector current, I_c

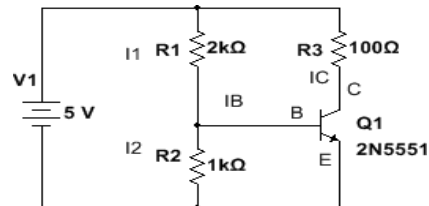


Figure 6.3 Transistor Circuit

Hints

6.B) Use the Voltage Divider Equation

6.C) Voltage across forward biased diodes is approximately 0.6 volts

6.D) Base-Emitter junction is a forward biased diode, thus V_{BE} is approximately 0.6 volts. Compare to Figure 2. Same I_{R1} , I_{R2} , and $I_{D1}=I_B$. $I_C = I_B \times h_{FE}$ just as long as the circuit allows that much current to flow in the collector, which it does here: $5V/100 \text{ ohms} = 5V / 0.1K = 50mA$