Lab8 – Black Box 3 Design

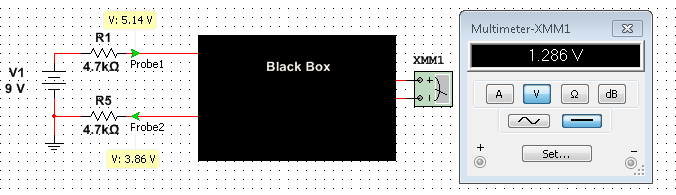
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Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

The purpose of this lab is to:

Learn about building a circuit that produces exactly 1.3V

Using at least 3 equal value resistors (in the Black Box) design a circuit that produces an output voltage of 1.3V. Then adjust R1 so that the output voltage is exactly 1.3V.



Equipment needed:

1 – Digital Multimeter

1 – Elvis II

5 – Standard Resistors

1 – 5 Kohm pot

|  |  |  |  |
| --- | --- | --- | --- |
|  | Measured | Calculated | Simulated |
| V1 = | 9 | 9 | 9 |
| VA = | 5.164 | 5.14 | 5.14 |
| VB = | 3.8743 | 3.86 | 3.86 |
| VA - VB = | 1.2893 | 1.28 | 1.28 |
| (VA - VB) adj = | 1.3 | 1.3 | 1.3 |

|  |  |  |
| --- | --- | --- |
|  | Design | Measured |
| R1 = | 4700 | 4610 |
| R2 = | 4700 | 4689 |
| R3 = | 4700 | 4591 |
| R4 = | 4700 | 4622 |
| R5 = | 4700 | 4626 |
| R(Black Box) = | 1566.6667 | 1537 |
| R1adj = | 4580 | 4580 |

Observations:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_