

Lesson 3 - Answers

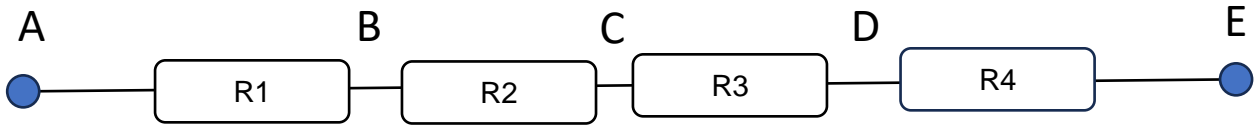


Figure 1

With reference to Figure 1, complete the following table with the calculated resistor values.

R1	R2	R3	R4	A to B	A to C	A to D	A to E	B to E	C to E
100 Ω	100 Ω	100 Ω	100 Ω	100 Ω	200 Ω	300 Ω	400 Ω	300 Ω	200 Ω
1 kΩ	1.5 kΩ	2 kΩ	5 Ω	1 kΩ	2.5 kΩ	4.5 kΩ	4.505 kΩ	3.505 kΩ	2005 Ω
10 Ω	20 Ω	30 Ω	40 Ω	10 Ω	30 Ω	60 Ω	100 Ω	90 Ω	70 Ω
10 Ω	1 kΩ	1 MΩ	10 MΩ	10 Ω	1010 Ω	1.001001 MΩ	11.001001 MΩ	10.000010 MΩ	10.000010 MΩ
1 Ω	1 Ω	1 Ω	1 Ω	1 Ω	2 Ω	3 Ω	4 Ω	3 Ω	2 Ω

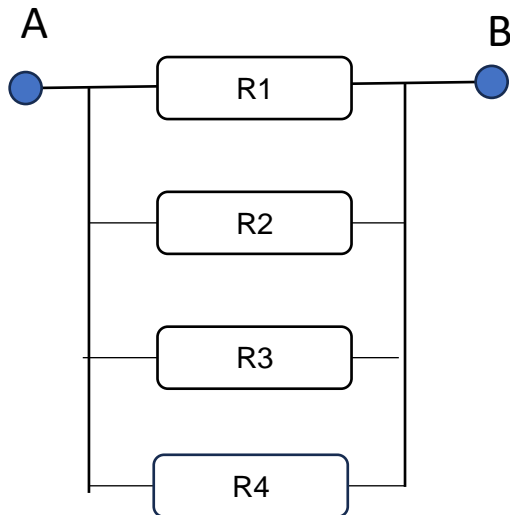


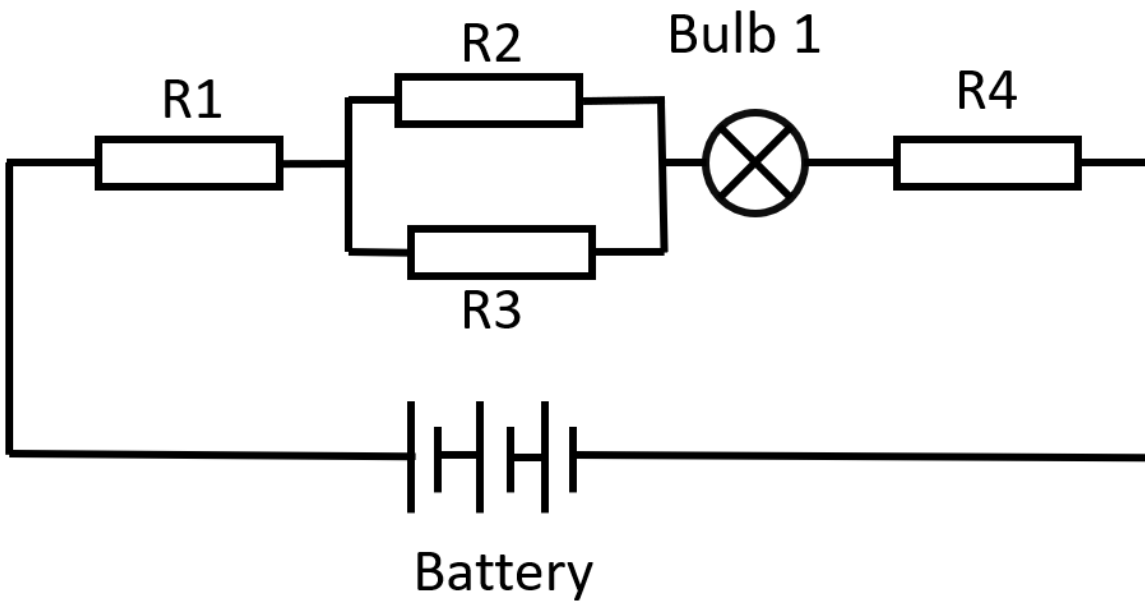
Figure 2

With reference to Figure 2, complete the following table with the calculated resistor values.

R1	R2	R3	R4	A to B
100 Ω	100 Ω	100 Ω	100 Ω	25 Ω
1 kΩ	1.5 kΩ	2 kΩ	5 Ω	4.94 Ω
10 Ω	20 Ω	30 Ω	40 Ω	4.8 Ω
10 Ω	1 kΩ	1 MΩ	10 MΩ	9.9 Ω
1 Ω	1 Ω	1 Ω	1 Ω	0.25 Ω

Complete the table of resistors.

Bands	1st Digit	2nd Digit	3 rd Digit	Multiplier	Tolerance	Temp	Answer
3	Blue	Blue	NA	Green	20%	NA	6.6 MΩ + - 20%
3	Yellow	Green	NA	Purple	20%	NA	450 MΩ + - 20%
3	Red	Grey	NA	White	20%	NA	28 GΩ + - 20%
3	Orange	Orange	NA	Black	20%	NA	33 Ω + - 20%
4	Green	Cyan	NA	Yellow	Red	NA	560 kΩ +- 2%
4	Purple	White	NA	Green	Orange	NA	7.9 MΩ +- 3%
5	Light Blue	Yellow	Purple	Red	Brown	NA	64.7 kΩ +- 5%
5	Red	Green	Black	White	Grey	NA	25 GΩ +- 10%
6	Blue	Orange	Blue	Blue	Brown	Red	636 MΩ +- 5% 50 ppm/C
6	Green	Grey	Orange	Green	Grey	Yellow	593 MΩ +- 5% 15 ppm/C



Calculate the total with the values of R2 and R3 in the following combinations.

R2	R3	Total R2/R3
100Ω	100Ω	50 Ω
200Ω	100Ω	66.6 Ω
50Ω	1000Ω	47.6 Ω
66Ω	33Ω	22 Ω

Calculate the total resistance with the values in the following combinations.

R1	R2/R3	Bulb	R4	Total
100 Ω	100 Ω	15 Ω	100 Ω	315 Ω
6 Ω	10 Ω	5 Ω	100 Ω	121 Ω
2K Ω	1.5K Ω	100 Ω	500 Ω	4.1 kΩ
1M Ω	2M Ω	100 Ω	6m Ω	9.1 MΩ

Complete the table assuming the following values.

Battery	Current	R1	R2	R3	Bulb	R4
90v	3A	6Ω	20Ω	202Ω	1.6 Ω	4Ω
12v	126 mA	20 Ω	100 Ω	100 Ω	15 Ω	10 Ω
60v	52 mA	100 Ω	30 Ω	30 Ω	15 Ω	1000 Ω

Complete the following table.

Band 1	Band 2	Band 3	Band 4	Value	Tolerance
Black	Brown	Red	Gold	100 Ω	5%
Brown	Black	Green	Red	1MΩ	2%
Green	Blue	Yellow	Red	56 kΩ	2%
Orange	Black	Brown	Silver	300 Ω	10 %

Optional question = **0.83 Ω**

