Jules' Workshop

Standard

Unit 3 - Answers

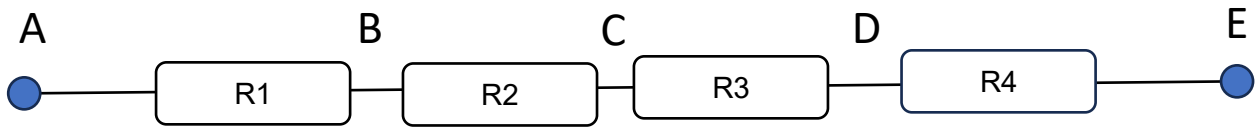


Figure 1

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
100Ω	100Ω	100 Ω	100 Ω	**100 Ω**	**200Ω**	**300Ω**	**400Ω**	**300Ω**	**200Ω**
1kΩ	1.5 kΩ	2 kΩ	5Ω	**1kΩ**	**2.5kΩ**	**4.5kΩ**	**4.505kΩ**	**3.505kΩ**	**2005Ω**
10Ω	20Ω	30Ω	40Ω	**10Ω**	**30Ω**	**60Ω**	**100Ω**	**90Ω**	**70Ω**
10Ω	1kΩ	1MΩ	10 Ω	**10Ω**	**1010 Ω**	**1.001010 MΩ**	**1.001020 M Ω**	**11.001010 MΩ**	**1.000010 MΩ**
1Ω	1Ω	1Ω	1Ω	**1Ω**	**2Ω**	**3Ω**	**4Ω**	**3Ω**	**2Ω**

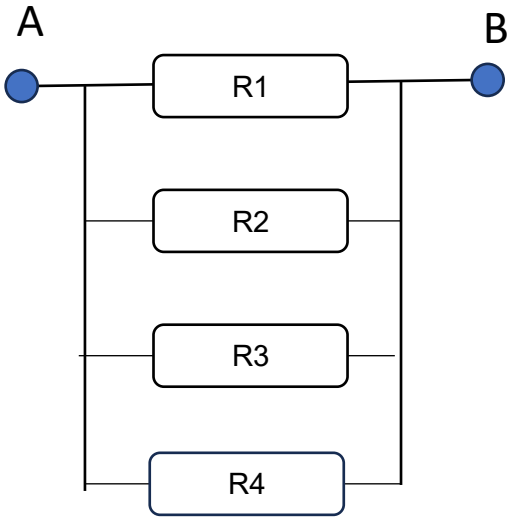


Figure 2

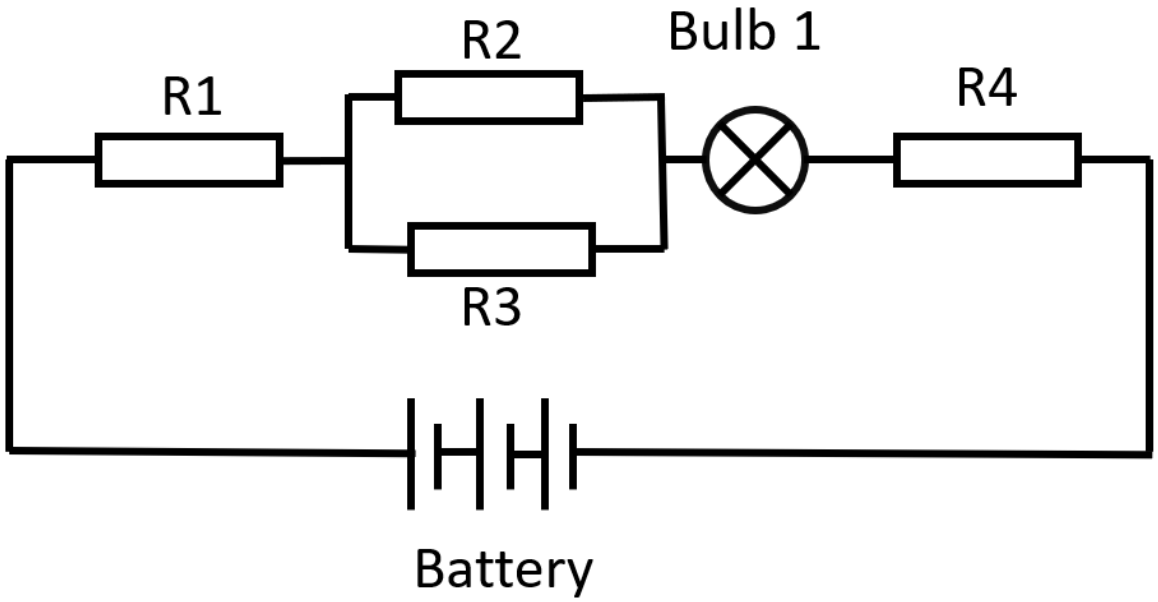
With reference to Figure 2, complete the following table with the calculated resistor values.

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

 © Jules Workshop 2026

Complete the table of resistors.

Bands	1st Digit	2nd Digit	3rd Digit	Multiplier	Tolerance	Temp	Answer
3			NA		20%	NA	**6.6 MΩ + - 20%**
3			NA		20%	NA	**450 MΩ + - 20%**
3			NA	j	20%	NA	**2.90 kΩ + - 20%**
3			NA		20%	NA	**33 Ω + - 20%**
4			NA			NA	**560 kΩ +- 2%**
4			NA			NA	**7.9 MΩ +- 3%**
5						NA	**64.7 kΩ +- 5%**
5					Silver	NA	**250 GΩ +- 10%**
6							**636 MΩ +- 5% 50 ppm/C**
6		Grey			Silver		**58.3 MΩ +- 0.01% 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**

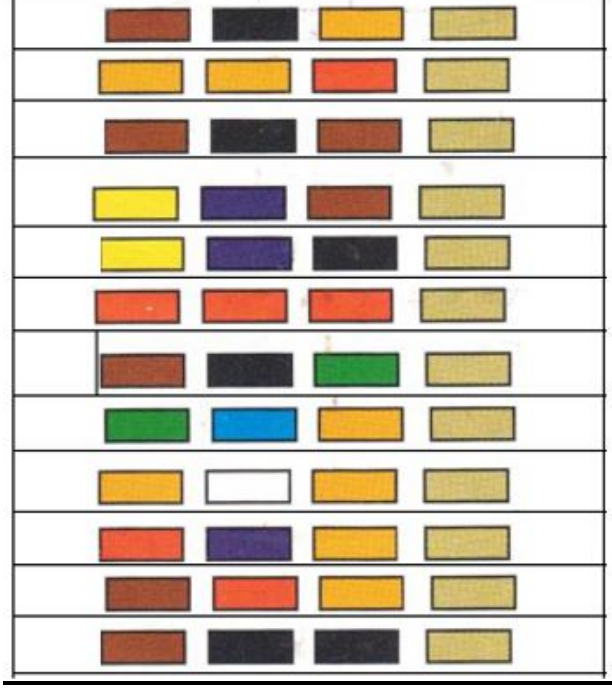
 © Jules Workshop 2026

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	**77.69 Ω**	**77.69 Ω**	15 Ω	1000 Ω

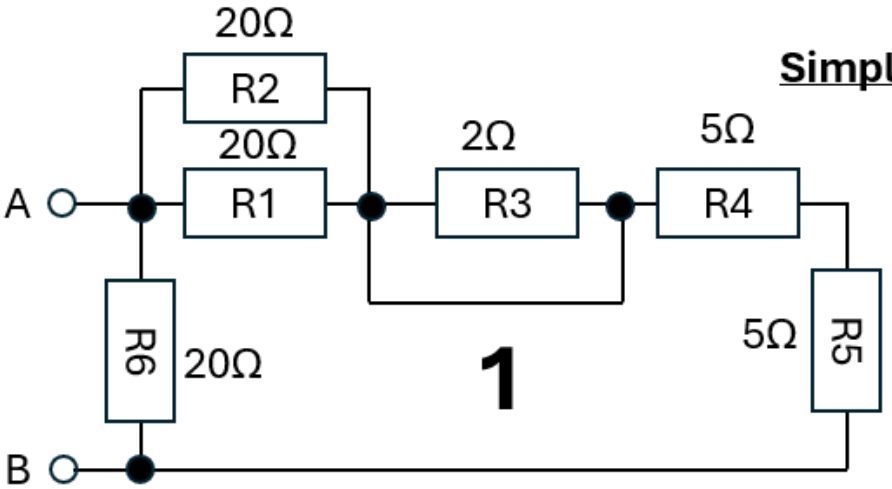
Complete the following table.

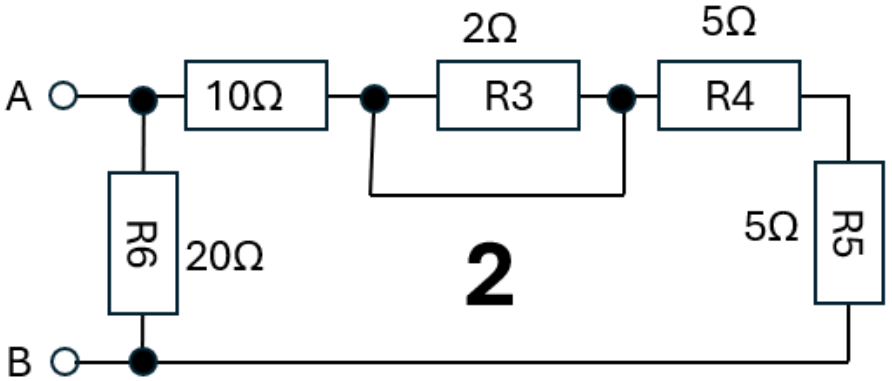
Band 1	Band 2	Band 3	Band 4	Value	Tolerance
Black	Brown	Red	Gold	**100 Ω**	**5%**
Brown	**Black**	**Green**	**Red**	1MΩ	2%
Green	Blue	Yellow	Red	**56 kΩ**	**2%**
Orange	Black	Brown	Silver	**300 Ω**	**10 %**

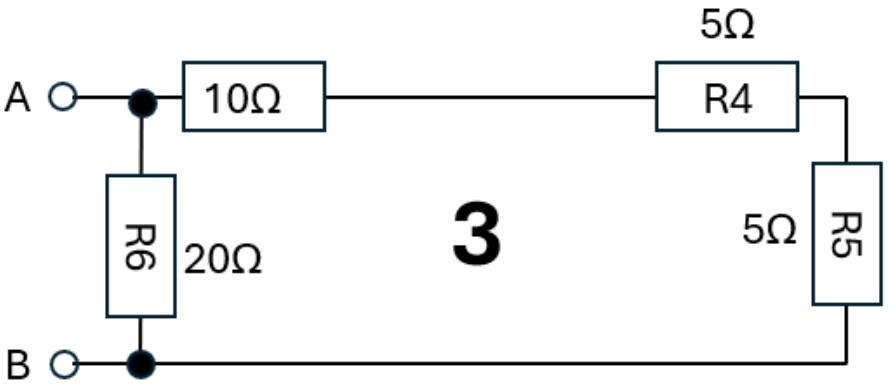
Colours		Value
	B Bl O G	10KΩ 5% ¼ watt
	O O R G	3.3KΩ 5% ¼ watt
	B Bl B G	100Ω 5% ¼ watt
	Y P B G	470 Ω 5% ¼ watt
	Y P Bl G	47Ω 5% ¼ watt
	R R R G	2.2KΩ 5% ¼ watt
	B Bl Gr G	1MΩ 5% ¼ watt
	Gr Bu O G	56KΩ 5% ¼ watt
	O W O G	39KΩ 5% ¼ watt
	R P O G	27KΩ 5% ¼ watt
	B R O G	12KΩ 5% ¼ watt
	B Bl Bl G	10Ω 5% ¼ watt

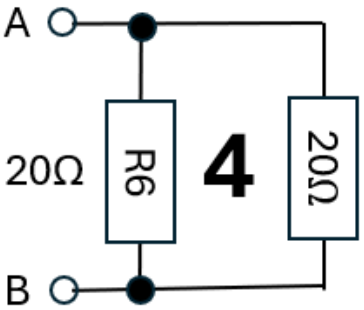
 © Jules Workshop 2026

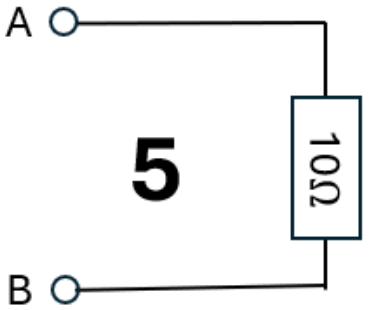
Simplify Circuit Answer





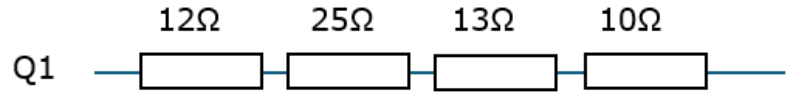




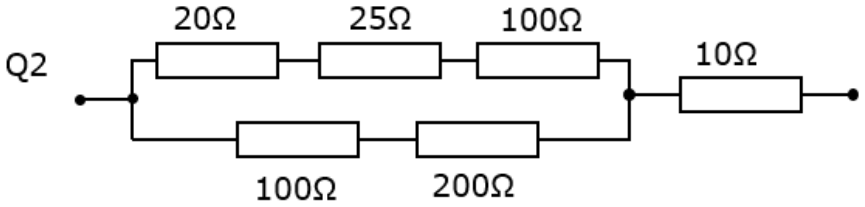


 © Jules Workshop 2026

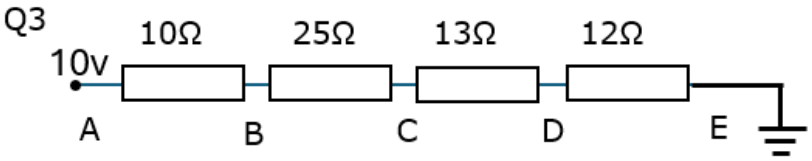
Resistor, Current and Voltage Exercises - Answers



Total Resistance: 60Ω

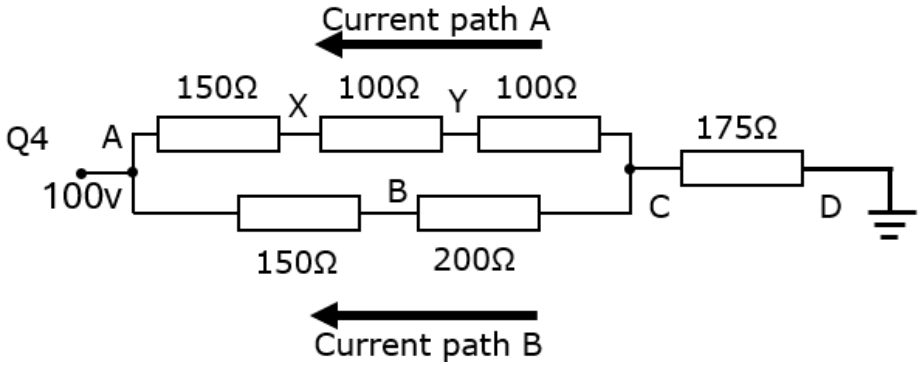


Total Resistance: 107.75Ω



Total Resistance: 60Ω Total Current: 0.16A

Voltage between A-B=1.6v B-C=4v C-D=2.16v D-E=2v



Total Resistance: 350Ω Total Current: 285.7mA

Current in Path A=142.8mA
Current in path B=142.8mA
Current in path C=285.7mA

Voltage between A-B=21.4285v B-C=28.571v C-D=50v

Voltage between A-X=21.4285v X-Y=14.285v Y-C=14.285v

Optional question = **0.83 Ω**

 © Jules Workshop 2026