## Principles of electrical science

**Basic electrical circuits and Ohm’s law**

1. What potential is produced across a resistance of 15Ω if a current of 12A is flowing through it?
2. A current of 10A flows through a resistor and a voltage of 150V is measured across it. Calculate the value of the resistor.
3. When a current of 2.5A is flowing through a resistor, a voltage of 200V is measured across the resistor. Calculate the value of the resistor.
4. What is the current flowing in the circuit when a voltage of 198V is present across a resistance of 3.3Ω?
5. A voltage of 20V is measured across a resistor of 400Ω. Calculate the current flowing in the circuit.
6. Complete the following table:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Voltage | 15 | 10 | 20 |  | 40 | 50 |  | 96 |  |
| Current |  | 1 |  | 3 | 4 |  | 5 | 8 | 0.1 |
| Ohms | 120 |  | 10 | 10 |  | 20 | 12 |  | 10 |

1. A cable of resistance 0.043Ω carries a current of 139.5A. What will be the voltage drop in the cable?
2. A certain cable has a resistance of 1.6Ω. What is the maximum current it can carry if the voltage drop is not to exceed 14.4 volts?
3. Complete the following table:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Voltage | 84 | 10 |  | 230 | 0.7 |  | 110 | 0.02 |  |
| Current |  | 0.1 | 0.2 |  | 0.9 | 0.05 |  | 0.01 | 0.166 |
| Ohms | 12 |  | 20 | 20 |  | 2.5 | 20 |  | 96 |