# EET103 Formula Sheet

## 1. Ohm’s Law

Where:

• V = voltage (volts, V)  
• I = current (amperes, A)  
• R = resistance (ohms, Ω)

V = I × R

Rearranged Forms:

I = V / R   R = V / I

## 2. Power Formulas

P = V × I

Where:

• P = power (watts, W)

Algebraic Variations:

P = I² × R   P = V² / R

Rearranged Forms:

I = P / V   V = P / I   R = V² / P

## 3. Kirchhoff’s Voltage Law (KVL)

The sum of voltages around any closed loop equals zero.

ΣV = 0

Example:  
VS - V₁ - V₂ - V₃ = 0  
Or equivalently: VS = V₁ + V₂ + V₃

## 4. Kirchhoff’s Current Law (KCL)

The sum of currents entering a node equals the sum of currents leaving the node.

ΣIin = ΣIout

Example: IT = I₁ + I₂ + I₃

## 5. Metric Prefixes and Conversions

|  |  |  |  |
| --- | --- | --- | --- |
| Prefix | Symbol | Multiplier | Power of 10 |
| Mega | M | 1,000,000 | 10⁶ |
| Kilo | k | 1,000 | 10³ |
| Base Unit | - | 1 | 10⁰ |
| Milli | m | 0.001 | 10⁻³ |
| Micro | µ | 0.000001 | 10⁻⁶ |

Conversions:

1 kΩ = 1,000 Ω   1 mA = 0.001 A   1 µA = 0.000001 A