

# Electronics theory

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## AC/DC

### Force

$$N_{force} = k_e \frac{Q_1 \cdot Q_2}{L_{distance}^2} \quad (1)$$

### Energy

$$J_{energy} = W_{power} \cdot T_{second} \quad (2)$$

$$J_{energy} = N_{force} \cdot L_{distance} \quad (3)$$

$$J_{energy} = Q_{charge} \cdot V_{voltage} \quad (4)$$

$$J_{energy} = A_{current}^2 \cdot \Omega \cdot T_{second} \quad (5)$$

### Power

$$W_{power} = V_{voltage} \cdot A_{current} \quad (6)$$

$$W_{power} = A_{current}^2 \cdot \Omega_{resistance} \quad (7)$$

$$W_{power} = \frac{J_{energy}}{T_{second}} \quad (8)$$

$$W_{power} = \frac{V_{voltage}^2}{\Omega_{resistance}} \quad (9)$$

## Electric charge

$$Q_{charge} = A_{current} \cdot T_{second} \quad (10)$$

$$Q_{charge} = \frac{J_{energy}}{V_{voltage}} \quad (11)$$

$$Q_{charge} = n_{electrones} \cdot e_{elementary\_charge} \quad (12)$$

$$1Q_{charge} = 1A_{current} \cdot T_{second} \quad (13)$$

## Electric field

$$E_{electric\_field} = k_e \frac{Q_{charge}}{L_{distance}^2} \quad (14)$$

## Current

$$A_{current} = \frac{Q_{charge}}{T_{second}} \quad (15)$$

## Electric potential

$$V_{voltage} = \frac{J_{energy}}{Q_{charge}} \quad (16)$$

## Condensator

$$J_{energy} = \frac{1}{2} \cdot C_{capacity} \cdot V_{voltage}^2 \quad (17)$$

## Resistors

## Circuits