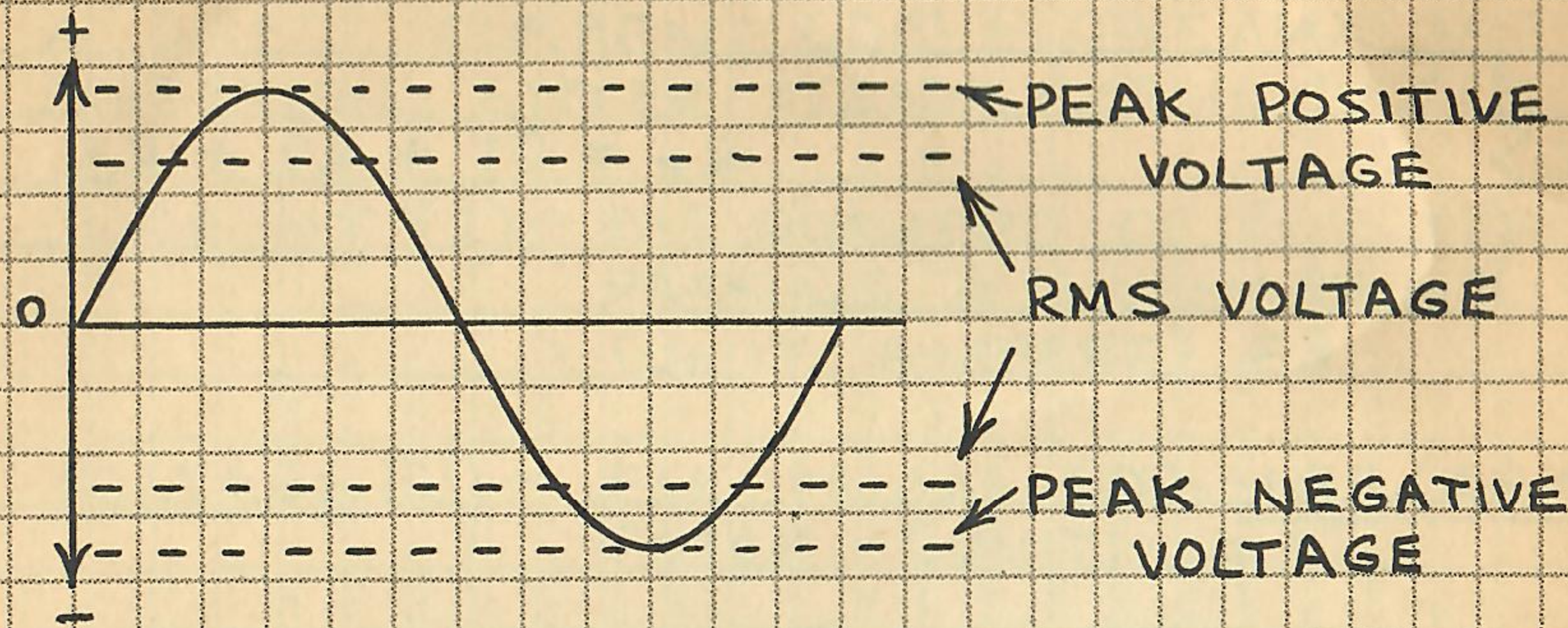


ALTERNATING CURRENT

AN ALTERNATING CURRENT (AC) FLOWS IN BOTH DIRECTIONS THROUGH A CONDUCTOR.



SEE THE DEFINITIONS OF I, V, R AND P ON PAGE 4.

PEAK VOLTAGE - MAXIMUM POSITIVE AND NEGATIVE EXCURSIONS OF AN ALTERNATING CURRENT.

RMS VOLTAGE - (ROOT-MEAN-SQUARE VOLTAGE) THAT AC VOLTAGE THAT EQUALS A DC VOLTAGE THAT DOES THE SAME WORK. FOR A SINE WAVE, 0.707 TIMES THE PEAK VOLTAGE.

IMPEDANCE (Z) - THE OPPOSITION TO AN ALTERNATING CURRENT PRESENTED BY A CIRCUIT. (UNIT: OHM)

$$\begin{aligned} \text{AVERAGE AC VOLTAGE} &= 0.637 \times \text{PEAK} \\ &= 0.9 \times \text{RMS} \end{aligned}$$

$$\begin{aligned} \text{RMS AC VOLTAGE} &= 0.707 \times \text{PEAK} \\ &= 1.11 \times \text{AVERAGE} \end{aligned}$$

$$\begin{aligned} \text{PEAK AC VOLTAGE} &= 1.414 \times \text{RMS} \\ &= 1.57 \times \text{AVERAGE} \end{aligned}$$

OHM'S LAW

$$V = I \times Z$$

$$I = \frac{E}{Z}$$

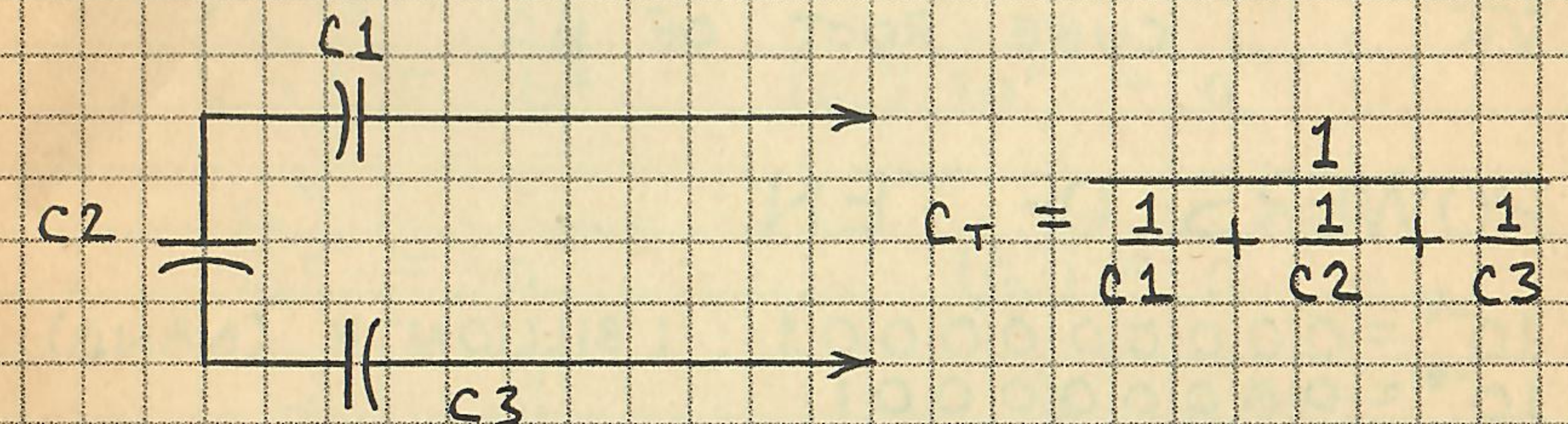
$$Z = \frac{E}{I}$$

$$P = E \times I \times \cos \theta$$

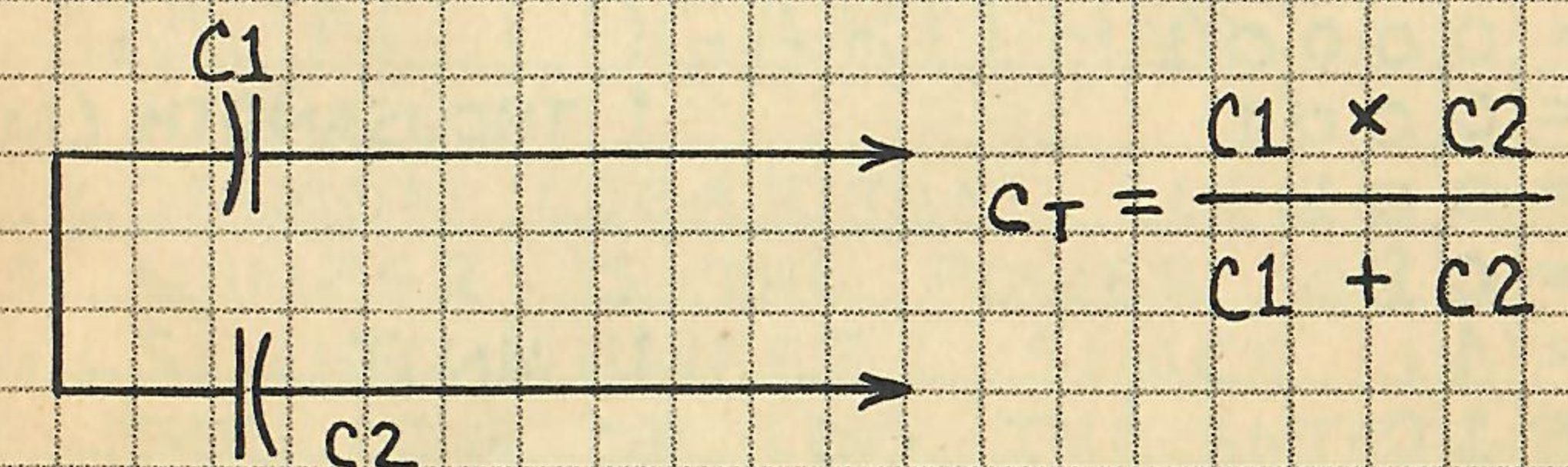
θ IS PHASE ANGLE, THE DIFFERENCE IN DEGREES BETWEEN CURRENT AND VOLTAGE. CURRENT LEADS VOLTAGE IN A CAPACITIVE CIRCUIT AND LAGS VOLTAGE IN A REACTIVE CIRCUIT. IN A RESISTIVE CIRCUIT θ IS 0° . THE COSINE OF 0° IS 1. THUS IN A RESISTIVE CIRCUIT $P = E \times I$.

CAPACITOR NETWORKS

SERIES



PARALLEL



PARALLEL (2 OR MORE)

