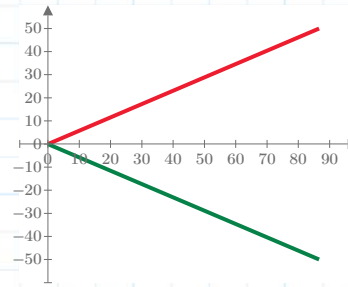


Lesson 6. Mathcadは数学を解くのに便利(3)

ベクトルの合成は複素数で考える。

$$E_a := 100 \text{ V} \angle 30 \text{ deg}$$

$$E_b := 100 \text{ V} \angle -30 \text{ deg}$$



Q.6-1 上記電圧の和と差を求めよ。

$$E_a + E_b = 173.205 \text{ V} \qquad |E_a + E_b| = 173.205 \text{ V}$$

$$E_a + E_b \xrightarrow{\text{simplify}} 200 \cdot \text{V} \cdot \cos(30 \cdot \text{deg}) \qquad \arg(E_a + E_b) = 0 \text{ rad}$$

$$E_a - E_b = 100i \text{ V} \qquad |E_a - E_b| = 100 \text{ V}$$

$$E_a - E_b \xrightarrow{\text{simplify}} 200i \cdot \text{V} \cdot \sin(30 \cdot \text{deg}) \qquad \arg(E_a - E_b) = 90 \text{ deg}$$

$$E_a \cdot E_b = (1 \cdot 10^4) \text{ V}^2 \qquad |E_a \cdot E_b| = (1 \cdot 10^4) \text{ V}^2 \qquad \arg(E_a \cdot E_b) = 0 \text{ rad}$$

$$\frac{E_a}{E_b} = 0.5 + 0.866i \qquad \left| \frac{E_a}{E_b} \right| = 1 \qquad \arg\left(\frac{E_a}{E_b}\right) = 60 \text{ deg}$$

Q.6-2 $\sin(\theta)$ と $\cos(\theta)$ で円をグラフで描け。

$$\theta := 0, 0.1 \dots 2 \cdot \pi$$

