

$$\left[(180^\circ - \alpha) \text{ i } \alpha \right]$$

$$\begin{aligned} \sin(180^\circ - \alpha) &= \sin \alpha \\ \cos(180^\circ - \alpha) &= -\cos \alpha \\ \operatorname{tg}(180^\circ - \alpha) &= -\operatorname{tg} \alpha \end{aligned}$$

$$(90^\circ + \alpha) \text{ i } \alpha$$

$$\begin{aligned} \sin(90^\circ + \alpha) &= \cos \alpha \\ \cos(90^\circ + \alpha) &= -\sin \alpha \\ \operatorname{tg}(\alpha + 90^\circ) &= -\frac{1}{\operatorname{tg} \alpha} \end{aligned}$$

$$(180^\circ + \alpha) \text{ i } \alpha$$

$$\begin{aligned} \sin(180^\circ + \alpha) &= -\sin \alpha \\ \cos(180^\circ + \alpha) &= -\cos \alpha \\ \operatorname{tg}(180^\circ + \alpha) &= \operatorname{tg} \alpha \end{aligned}$$

$$-\alpha \text{ i } \alpha$$

$$\begin{aligned} \sin(-\alpha) &= -\sin \alpha \\ \cos(-\alpha) &= \cos \alpha \\ \operatorname{tg}(-\alpha) &= -\operatorname{tg} \alpha \end{aligned}$$

$$(90^\circ - \alpha) \text{ i } \alpha$$

$$\begin{aligned} \sin(90^\circ - \alpha) &= \cos \alpha \\ \cos(90^\circ - \alpha) &= \sin \alpha \\ \operatorname{tg}(90^\circ - \alpha) &= \frac{1}{\operatorname{tg} \alpha} \end{aligned}$$

$$\left[\oplus \text{ i } \ominus \quad \sin \quad \cos \right]$$

$$\sin A + \sin B = 2 \sin \left(\frac{A+B}{2} \right) \cos \left(\frac{A-B}{2} \right)$$

$$\sin A - \sin B = 2 \cos \left(\frac{A+B}{2} \right) \sin \left(\frac{A-B}{2} \right)$$

$$\cos A + \cos B = 2 \cos \left(\frac{A+B}{2} \right) \cos \left(\frac{A-B}{2} \right)$$

$$\left[\cos A - \cos B = -2 \sin \left(\frac{A+B}{2} \right) \sin \left(\frac{A-B}{2} \right) \right]$$

RT. SUMA

$$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta$$

$$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta$$

$$\operatorname{tg}(\alpha + \beta) = \frac{\operatorname{tg} \alpha + \operatorname{tg} \beta}{1 - \operatorname{tg} \alpha \operatorname{tg} \beta}$$

RT. RESTA

$$\sin(\alpha - \beta) = \sin \alpha \cos \beta - \cos \alpha \sin \beta$$

$$\cos(\alpha - \beta) = \cos \alpha \cos \beta + \sin \alpha \sin \beta$$

$$\operatorname{tg}(\alpha - \beta) = \frac{\operatorname{tg} \alpha - \operatorname{tg} \beta}{1 + \operatorname{tg} \alpha \operatorname{tg} \beta}$$

RT. A. DOBLE

$$\sin(2\alpha) = 2 \sin \alpha \cos \alpha$$

$$\cos(2\alpha) = \cos^2 \alpha - \sin^2 \alpha$$

$$\operatorname{tg}(2\alpha) = \frac{2 \operatorname{tg} \alpha}{1 - \operatorname{tg}^2 \alpha}$$

RT. A. MEITAT

$$\sin(\alpha/2) = \pm \sqrt{\frac{1 - \cos \alpha}{2}}$$

$$\cos(\alpha/2) = \pm \sqrt{\frac{1 + \cos \alpha}{2}}$$

$$\operatorname{tg}(\alpha/2) = \pm \sqrt{\frac{1 - \cos \alpha}{1 + \cos \alpha}}$$

GRAUS

rad

sin

cos

tg

$$\rightarrow 30^\circ$$

$$\pi/6$$

$$1/2$$

$$\sqrt{3}/2$$

$$\sqrt{3}/3$$

$$\rightarrow 45^\circ$$

$$\pi/4$$

$$\sqrt{2}/2$$

$$\sqrt{2}/2$$

$$1$$

$$\rightarrow 60^\circ$$

$$\pi/3$$

$$\sqrt{3}/2$$

$$1/2$$

$$\sqrt{3}$$

$$0$$

$$0$$

$$0$$

$$1$$

$$0$$

$$90^\circ$$

$$\pi/2$$

$$1$$

$$0$$

$$-$$

$$180^\circ$$

$$\pi$$

$$0$$

$$-1$$

$$0$$