

WZORY REDUKCYJNE

$$\sin(90^\circ - \alpha) = \cos \alpha$$

$$\cos(90^\circ - \alpha) = \sin \alpha$$

$$\operatorname{tg}(90^\circ - \alpha) = \operatorname{ctg} \alpha$$

$$\operatorname{ctg}(90^\circ - \alpha) = \operatorname{tg} \alpha$$

$$\sin(90^\circ + \alpha) = \cos \alpha$$

$$\cos(90^\circ + \alpha) = -\sin \alpha$$

$$\operatorname{tg}(90^\circ + \alpha) = -\operatorname{ctg} \alpha$$

$$\operatorname{ctg}(90^\circ + \alpha) = -\operatorname{tg} \alpha$$

$$\sin(180^\circ - \alpha) = \sin \alpha$$

$$\cos(180^\circ - \alpha) = -\cos \alpha$$

$$\operatorname{tg}(180^\circ - \alpha) = -\operatorname{tg} \alpha$$

$$\operatorname{ctg}(180^\circ - \alpha) = -\operatorname{ctg} \alpha$$

$$\sin(180^\circ + \alpha) = -\sin \alpha$$

$$\cos(180^\circ + \alpha) = -\cos \alpha$$

$$\operatorname{tg}(180^\circ + \alpha) = \operatorname{tg} \alpha$$

$$\operatorname{ctg}(180^\circ + \alpha) = \operatorname{ctg} \alpha$$

$$\sin(270^\circ - \alpha) = -\cos \alpha$$

$$\cos(270^\circ - \alpha) = -\sin \alpha$$

$$\operatorname{tg}(270^\circ - \alpha) = \operatorname{ctg} \alpha$$

$$\operatorname{ctg}(270^\circ - \alpha) = \operatorname{tg} \alpha$$

$$\sin(270^\circ + \alpha) = -\cos \alpha$$

$$\cos(270^\circ + \alpha) = \sin \alpha$$

$$\operatorname{tg}(270^\circ + \alpha) = -\operatorname{ctg} \alpha$$

$$\operatorname{ctg}(270^\circ + \alpha) = -\operatorname{tg} \alpha$$

$$\sin(360^\circ - \alpha) = -\sin \alpha$$

$$\cos(360^\circ - \alpha) = \cos \alpha$$

$$\operatorname{tg}(360^\circ - \alpha) = -\operatorname{tg} \alpha$$

$$\operatorname{ctg}(360^\circ - \alpha) = -\operatorname{ctg} \alpha$$



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β	$\frac{\pi}{2} - \alpha$	$\frac{\pi}{2} + \alpha$	$\pi - \alpha$	$\pi + \alpha$	$\frac{3}{2}\pi - \alpha$	$\frac{3}{2}\pi + \alpha$	$2\pi - \alpha$
$\sin \beta$	$\cos \alpha$	$\cos \alpha$	$\sin \alpha$	$-\sin \alpha$	$-\cos \alpha$	$-\cos \alpha$	$-\sin \alpha$
$\cos \beta$	$\sin \alpha$	$-\sin \alpha$	$-\cos \alpha$	$-\cos \alpha$	$-\sin \alpha$	$\sin \alpha$	$\cos \alpha$
$\operatorname{tg} \beta$	$\operatorname{ctg} \alpha$	$-\operatorname{ctg} \alpha$	$-\operatorname{tg} \alpha$	$\operatorname{tg} \alpha$	$\operatorname{ctg} \alpha$	$-\operatorname{ctg} \alpha$	$-\operatorname{tg} \alpha$
$\operatorname{ctg} \beta$	$\operatorname{tg} \alpha$	$-\operatorname{tg} \alpha$	$-\operatorname{ctg} \alpha$	$\operatorname{ctg} \alpha$	$\operatorname{tg} \alpha$	$-\operatorname{tg} \alpha$	$-\operatorname{ctg} \alpha$