

Tożsamości trygonometryczne:

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$\sin(\alpha \pm \beta) = \sin \alpha \cdot \cos \beta \pm \cos \alpha \cdot \sin \beta$$

$$\cos(\alpha \pm \beta) = \cos \alpha \cdot \cos \beta \mp \sin \alpha \cdot \sin \beta$$

$$\sin 2\alpha = 2 \sin \alpha \cdot \cos \alpha$$

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

Wzory redukcyjne:

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

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

$$\sin\left(\frac{\pi}{2} - \alpha\right) = \cos \alpha$$

$$\cos\left(\frac{\pi}{2} - \alpha\right) = \sin \alpha$$

$$\sin\left(\frac{\pi}{2} + \alpha\right) = \cos \alpha$$

$$\cos\left(\frac{\pi}{2} + \alpha\right) = -\sin \alpha$$

$$\sin(\pi - \alpha) = \sin \alpha$$

$$\cos(\pi - \alpha) = -\cos \alpha$$

$$\sin(\pi + \alpha) = -\sin \alpha$$

$$\cos(\pi + \alpha) = -\cos \alpha$$

$$\sin\left(\frac{3\pi}{2} - \alpha\right) = -\cos \alpha$$

$$\cos\left(\frac{3\pi}{2} - \alpha\right) = -\sin \alpha$$

$$\sin\left(\frac{3\pi}{2} + \alpha\right) = \cos \alpha$$

$$\cos\left(\frac{3\pi}{2} + \alpha\right) = \sin \alpha$$

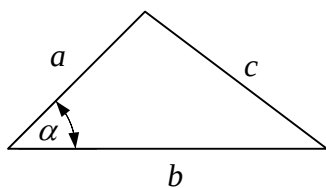
$$\sin(2\pi - \alpha) = -\sin \alpha$$

$$\cos(2\pi - \alpha) = \cos \alpha$$

$$\sin(2\pi + \alpha) = \sin \alpha$$

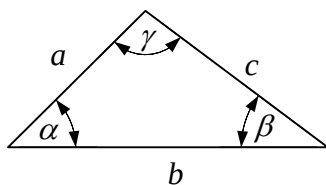
$$\cos(2\pi + \alpha) = \cos \alpha$$

Twierdzenie cosinusów:



$$c^2 = a^2 + b^2 - 2ab \cos \alpha$$

Twierdzenie sinusów:



$$\frac{a}{\sin \beta} = \frac{b}{\sin \gamma} = \frac{c}{\sin \alpha}$$