

$\angle$	0	30° $\frac{\pi}{6}$	45° $\frac{\pi}{4}$	60° $\frac{\pi}{3}$	90° $\frac{\pi}{2}$	120° $\frac{2\pi}{3}$	135° $\frac{3\pi}{4}$	150° $\frac{5\pi}{6}$	180° π
$\sin \angle$	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1	$\sin 60^\circ$			

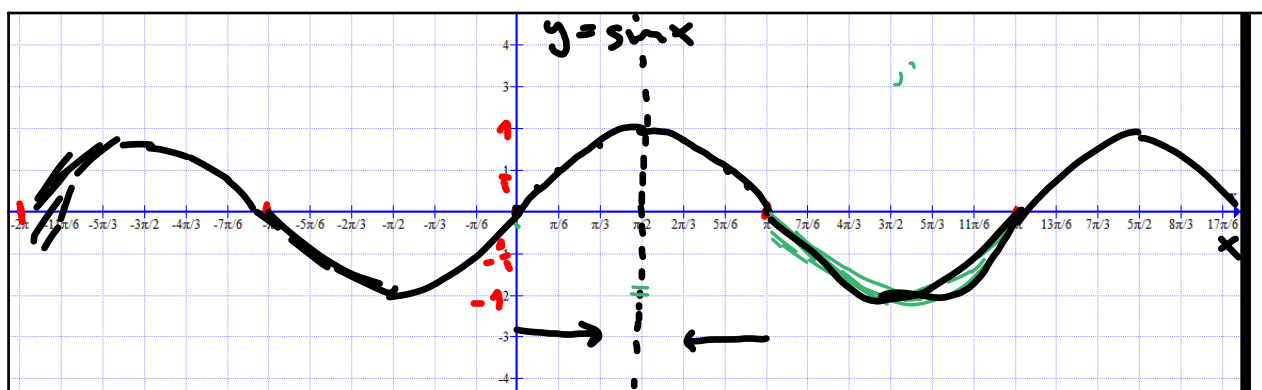
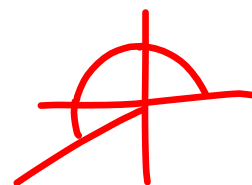
$$\sin 120^\circ = \sin(180^\circ - 60^\circ) = \sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\sin(135^\circ) = \sin(180^\circ - 45^\circ) = \sin 45^\circ = \frac{\sqrt{2}}{2}$$

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

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

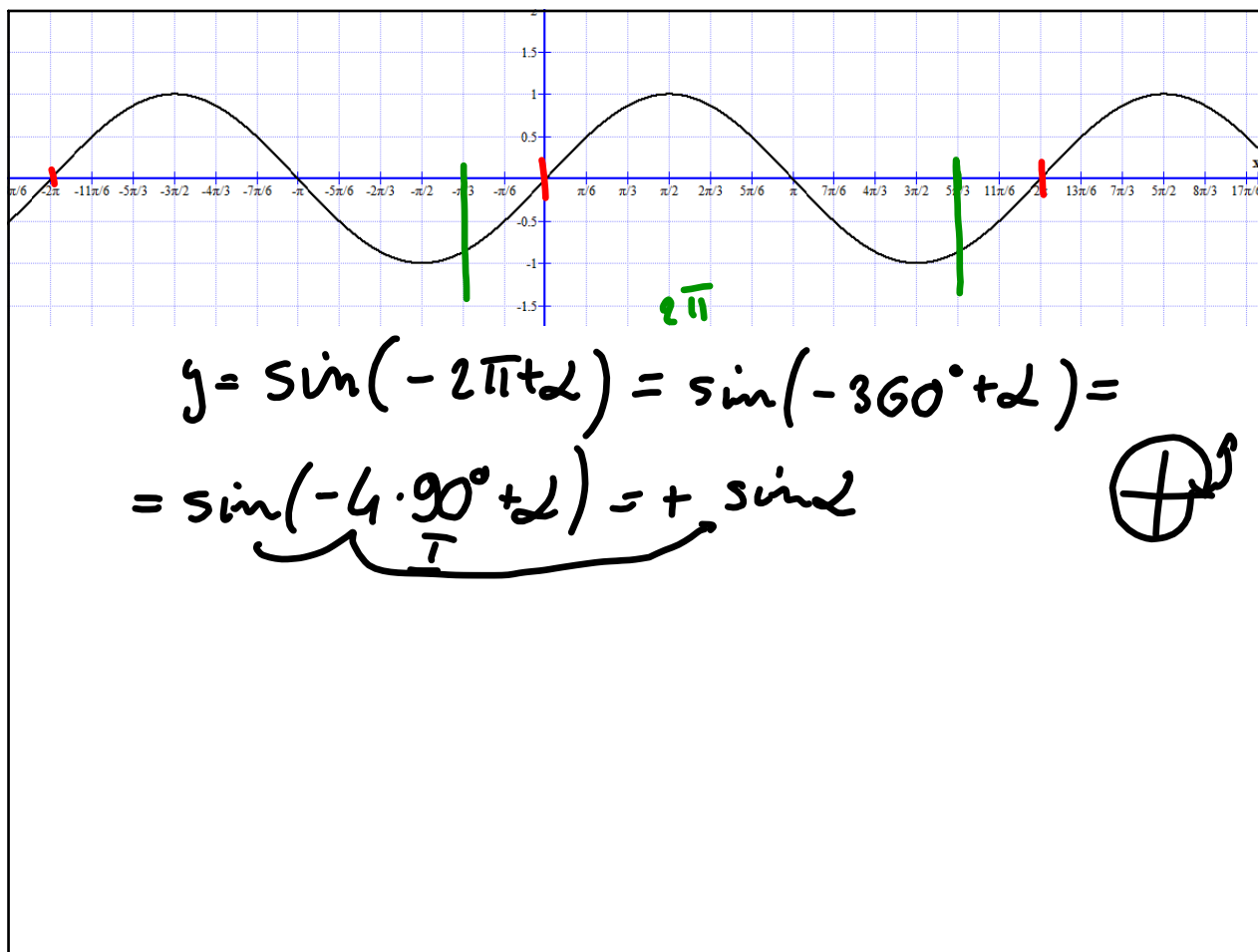
$$\sin(\pi + \angle) = -\sin \angle$$



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

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

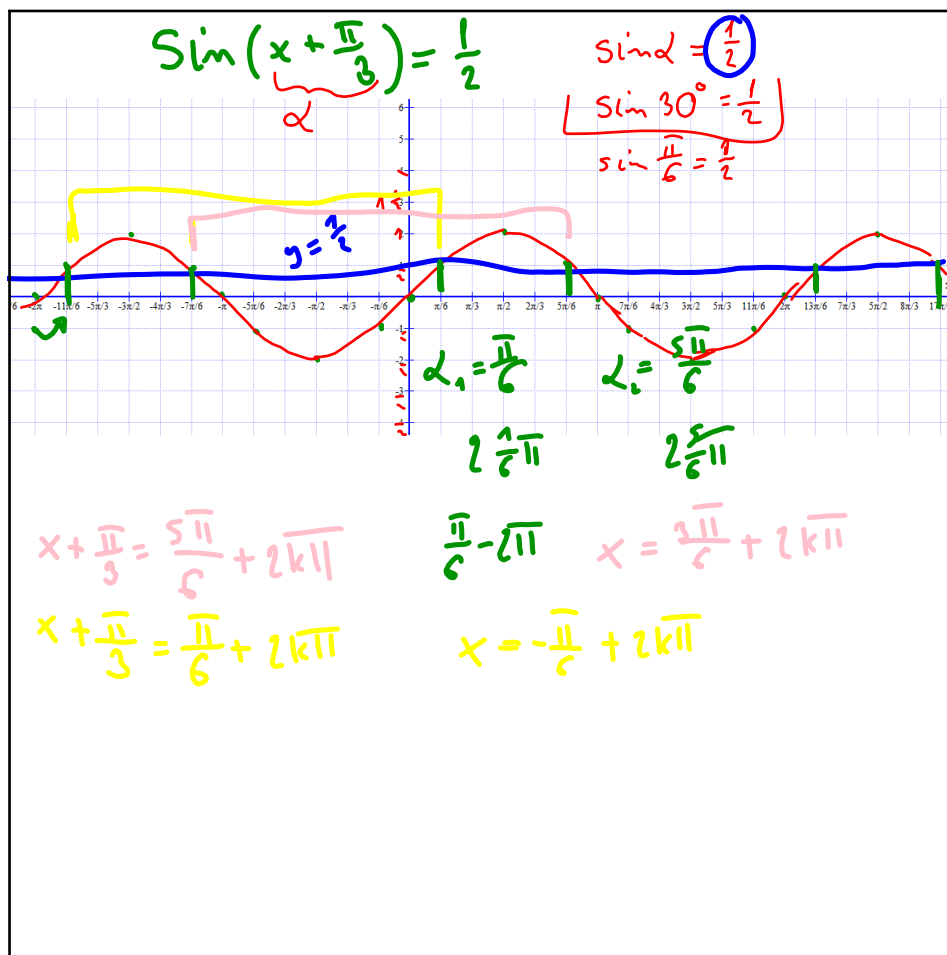
$$\sin(2\pi + \angle) = \sin \angle$$



$\boxed{\sin\left(x + \frac{\pi}{3}\right) = \frac{1}{2}}$

Równanie trygonometryczne ←
 Clonkane.

$f(\alpha) = a$ ← $a \in \mathbb{R}$
 ↑
 f. tryg α dowolny i rzeczywisty



OKRESOWOŚĆ F. TRYG. $\left(\begin{matrix} 2\pi = 360^\circ \\ \pi = 180^\circ \end{matrix} \right)$

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

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

$$\tan(k \cdot \pi + \alpha) = \tan \alpha$$

$$\cot(k \cdot \pi + \alpha) = \cot \alpha$$

$$k \in \mathbb{Z}$$

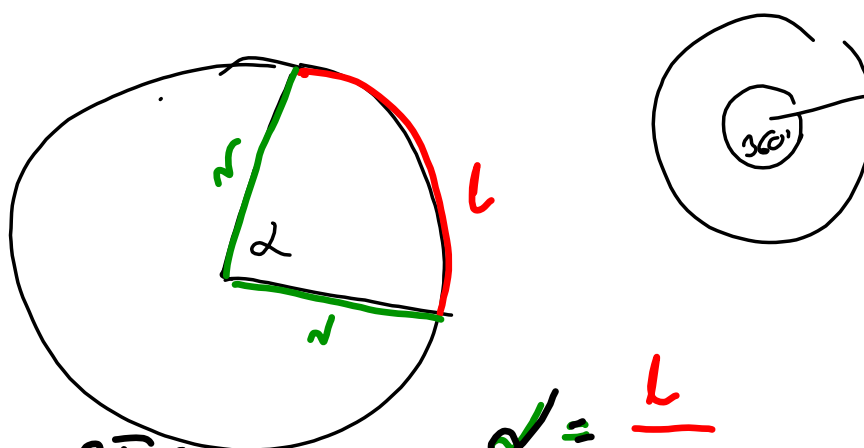
$$\sin(2\pi - \alpha) \stackrel{?}{=} -\sin \alpha$$

II kw.

$$\sin(-\alpha)$$

II paeł.

$$-\sin \alpha$$



$$\gamma \quad \alpha = \frac{2\pi r}{r} = \underline{2\pi} = \underline{360^\circ} \Rightarrow \pi = 180^\circ \quad \alpha = \frac{L}{r}$$

Definicja miary łukowej kąta.

Miarą łukową kąta nazywamy stosunek długości łuku do długości promienia tego łuku.

$$\sin \frac{\pi}{6} = \sin \frac{180^\circ}{6} = \sin 30^\circ = \frac{1}{2}$$