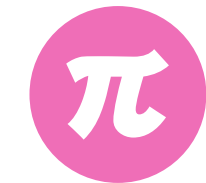


Zapamiętaj



Funkcje trygonometryczne kąta rozwartego

Funkcje trygonometryczne dla kątów $> 90^\circ$ definiujemy na układzie współrzędnych:

$P = (x, y)$

$$\sin(\alpha) = \frac{y}{r}$$
$$\cos(\alpha) = \frac{x}{r}$$
$$\operatorname{tg}(\alpha) = \frac{y}{x}$$
$$r^2 = x^2 + y^2$$
$$r = \sqrt{x^2 + y^2}$$

$\alpha = 0^\circ$

$P = (x, 0)$
 $r = x$

$$\sin 0^\circ = \frac{y}{r} = \frac{0}{x} = 0$$
$$\cos 0^\circ = \frac{x}{r} = \frac{x}{x} = 1$$
$$\operatorname{tg} 0^\circ = \frac{y}{x} = \frac{0}{x} = 0$$

$\alpha = 90^\circ$

$P = (0, y)$
 $r = y$

$$\sin 90^\circ = \frac{y}{r} = \frac{y}{y} = 1$$
$$\cos 90^\circ = \frac{x}{r} = \frac{0}{y} = 0$$
$$\operatorname{tg} 90^\circ = \frac{y}{x} = \frac{y}{0} \text{ nie istnieje!}$$

$\alpha = 180^\circ$

$P = (x, 0)$
 $r = |x|$

$$\sin 180^\circ = \frac{y}{r} = \frac{0}{-x} = 0$$
$$\cos 180^\circ = \frac{x}{r} = \frac{x}{-x} = -1$$
$$\operatorname{tg} 180^\circ = \frac{y}{x} = \frac{0}{x} = 0$$