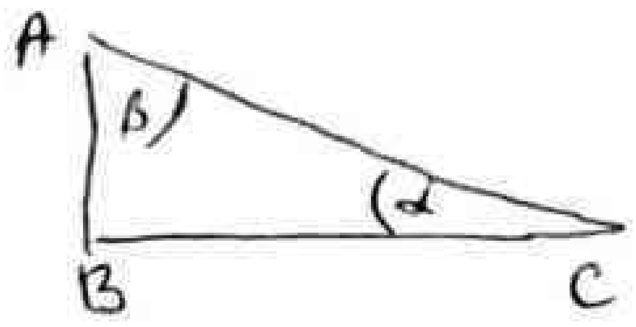
 slavica.eric60@gmail.com

Тригонометријске ф-је оштрог угла



$\sin\alpha = \frac{AB}{AC}$ $\quad \cos\beta = \frac{AB}{AC}$

$\sin\beta = \frac{BC}{AC}$ $\quad \cos\alpha = \frac{BC}{AC}$

$\Rightarrow \sin\beta = \cos\alpha$, $\cos\beta = \sin\alpha$

$$tg\alpha = \frac{\sin\alpha}{\cos\alpha}$$

$$ctg\alpha = \frac{\cos\alpha}{\sin\alpha}$$

$$180^\circ = \pi \cdot rad$$

$$1^\circ = \left(\frac{\pi}{180^\circ}\right) rad \approx 0{,}01745\,rad$$

$$1\,rad = \left(\frac{180}{\pi}\right)^\circ = 57^\circ 17' 45''$$

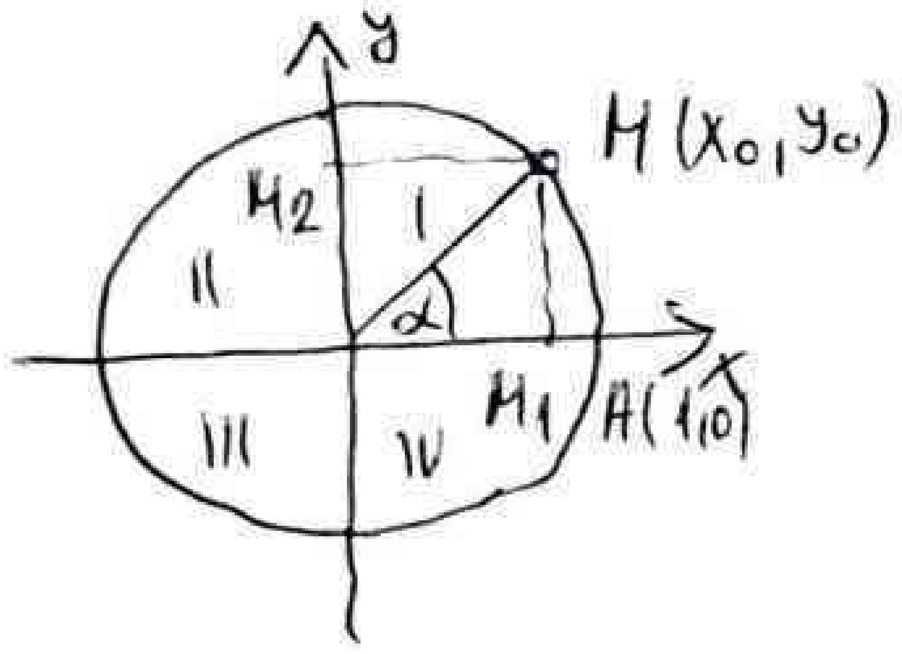
$$x^\circ = \left(\frac{\pi}{180}x\right) rad$$

$$x\,rad = \left(\frac{180}{\pi}x\right)^\circ$$

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

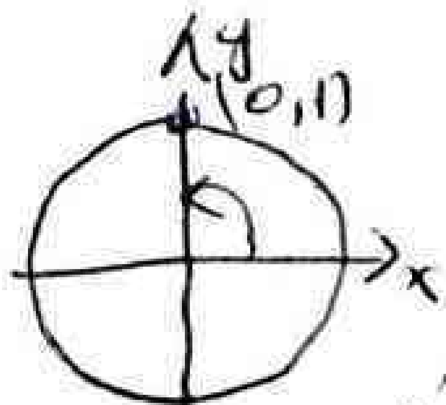
$$tg\alpha \cdot ctg\alpha = 1$$

Тригонометријски круг

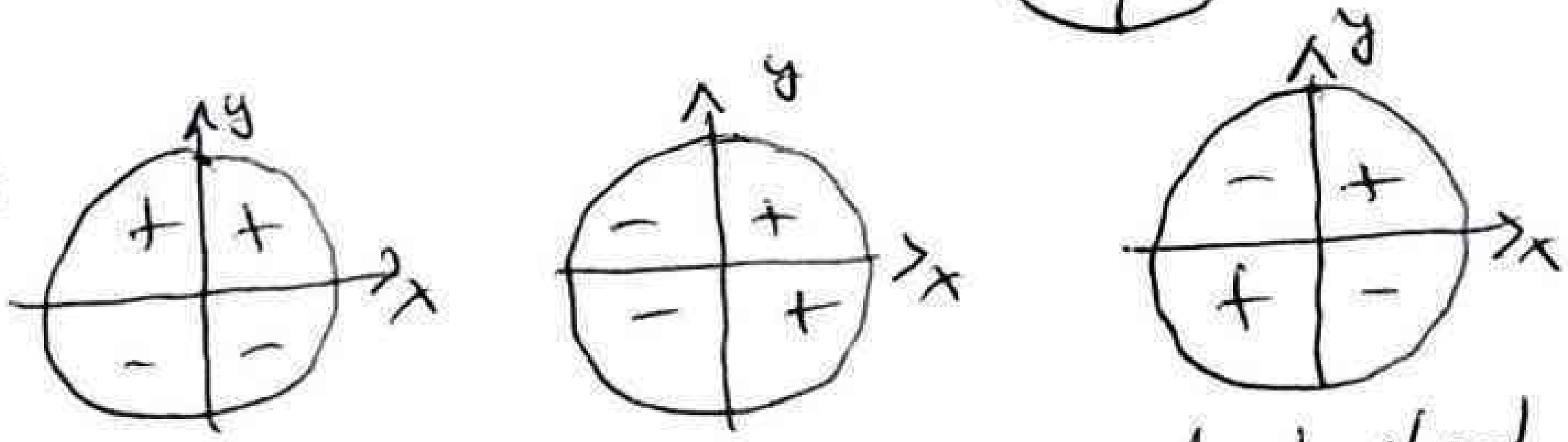


$\cos\alpha = OM_1 = x_0$, $\sin\alpha = OM_2 = y_0$ $\Rightarrow M(\cos\alpha, \sin\alpha)$

пр. $\alpha = \frac{\pi}{2}$; $\cos\frac{\pi}{2} = 0$; $\sin\frac{\pi}{2} = 1$



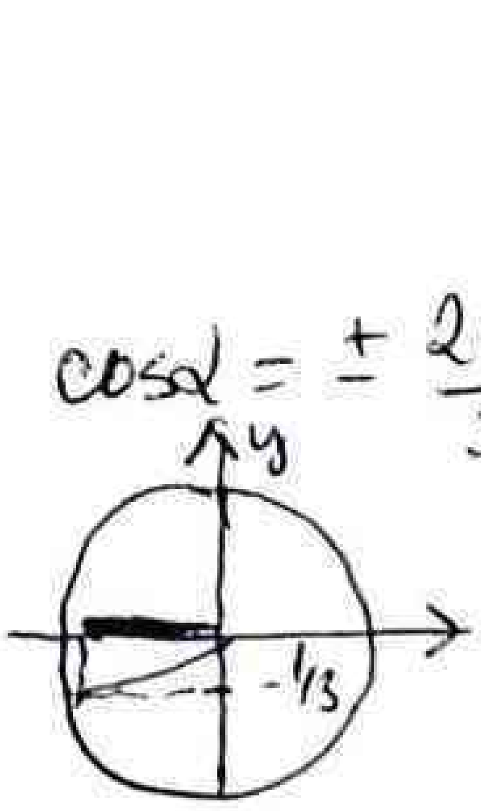
ЗНАК:



$\sin\alpha$ $\quad \cos\alpha$ $\quad tg\alpha, ctg\alpha$

594. a) $\sin\alpha = -\frac{1}{3}$; $\pi < \alpha < \frac{3\pi}{2}$

$\cos\alpha = \sqrt{1-\sin^2\alpha} = \sqrt{1-\frac{1}{9}} = \sqrt{\frac{8}{9}}$ $\quad \cos\alpha = \pm\frac{2\sqrt{2}}{3}$



$\cos\alpha = -\frac{2\sqrt{2}}{3}$

$tg\alpha = \frac{\sin\alpha}{\cos\alpha} = \frac{\sqrt{2}}{4}$

$ctg\alpha = 2\sqrt{2}$

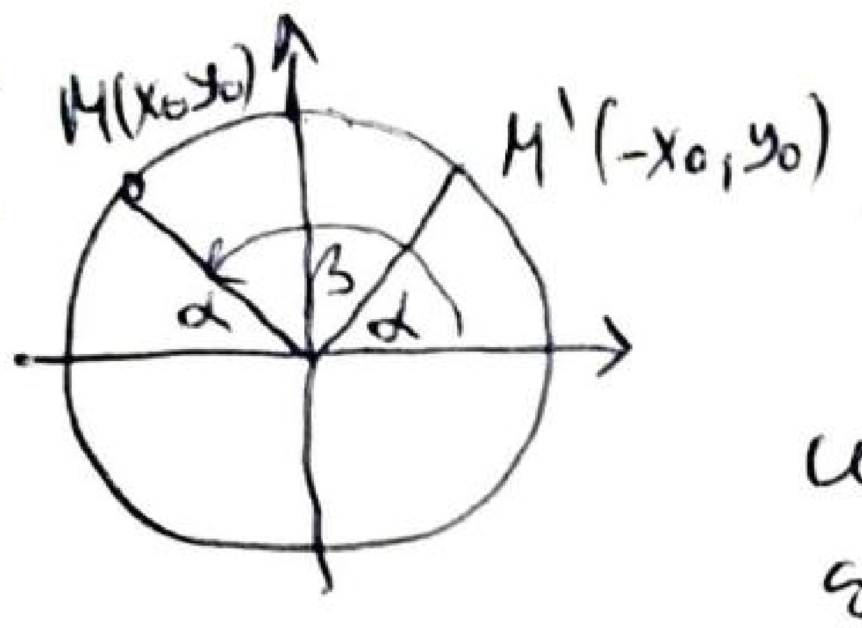
595. a) $\sin\alpha = \frac{12}{13}$ $\quad 0 < \alpha < \frac{\pi}{2}$

$\cos\alpha = \sqrt{1-\frac{144}{169}} = \pm\frac{5}{13} \Rightarrow \cos\alpha = \frac{5}{13}$

$tg\alpha = \frac{12}{5}$, $ctg\alpha = \frac{5}{12}$

Свођење на I квадрант

II



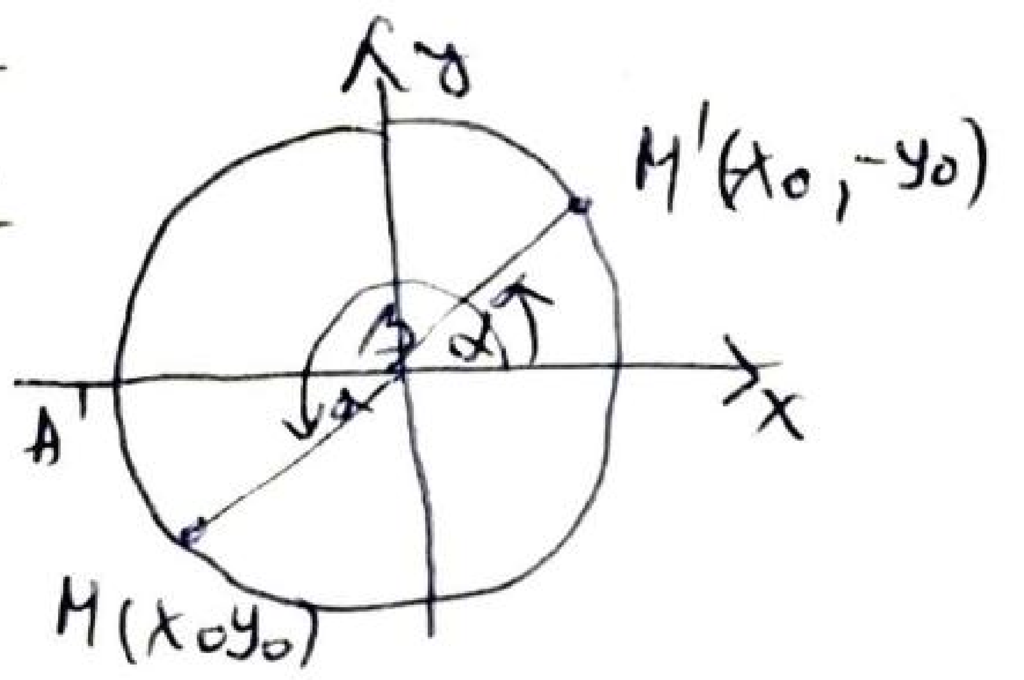
$\cos\beta = x_0 = -x_0 = -\cos\alpha$

$\sin\beta = y_0 = \sin\alpha$

$\cos(\pi-\alpha) = -\cos\alpha \qquad tg(\pi-\alpha) = -tg\,\alpha$

$\sin(\pi-\alpha) = \sin\alpha \qquad ctg(\pi-\alpha) = -ctg\,\alpha$

III



$\cos\beta = x_0 = -x_0 = -\cos\alpha$

$\sin\beta = y_0 = -y_0 = -\sin\alpha$

$\cos(\pi+\alpha) = -\cos\alpha \quad ; \quad tg(\pi+\alpha) = tg\,\alpha$

$\sin(\pi+\alpha) = -\sin\alpha \quad ; \quad ctg(\pi+\alpha) = ctg\,\alpha$

Задаци:

$\cos\frac{3\pi}{4} = \cos\left(\pi - \frac{\pi}{4}\right) = -\cos\frac{\pi}{4} = -\frac{\sqrt{2}}{2}$

$\sin\frac{5\pi}{6} = \sin\left(\pi - \frac{\pi}{6}\right) = \sin\frac{\pi}{6} = \frac{1}{2}$

$tg\,210^\circ = tg(180^\circ + 30^\circ) = tg\,30^\circ = \frac{\sqrt{3}}{3}$

Домаћи: $\cos 120^\circ = -1/2 \qquad \sin\frac{11\pi}{6} = -\frac{1}{2}$

$\sin\frac{5\pi}{4} = -\frac{\sqrt{2}}{2} \qquad \cos\left(-\frac{\pi}{6}\right) = \frac{\sqrt{3}}{2}$