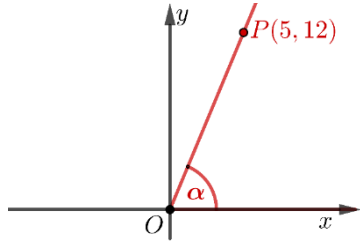


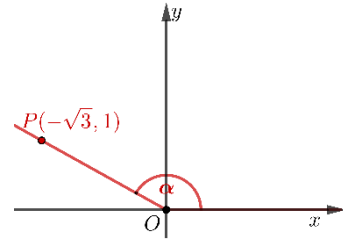
Trigonometry of convex angles

Task 1. (5p) Calculate $\sin \alpha$, $\cos \alpha$, $\tan \alpha$, $\cot \alpha$.

(a)



(b)



Task 2. You are given an angle α such that $\alpha \in (90^\circ, 180^\circ)$ and $\sin \alpha = \frac{2}{3}$.

Use trigonometric identities to calculate $\cos \alpha$, $\tan \alpha$ and $\cot \alpha$

Task 3. You are given an angle α such that $\alpha \in (0^\circ, 180^\circ)$ and $\tan \alpha = -7$.

Use trigonometric identities to calculate $\sin \alpha$, $\cos \alpha$, $\cot \alpha$.

Task 4. Calculate without calculator:

(a) $(2 + \cos 150^\circ)(2 - \sin 120^\circ) + \operatorname{tg} 135^\circ =$

(b) $\sin^2 150^\circ + \cos^2 120^\circ + \operatorname{tg}^2 135^\circ =$

(c) $\tan 20^\circ \cdot \tan 51^\circ \cdot \tan 30^\circ \cdot \tan 39^\circ \cdot \tan 70^\circ =$