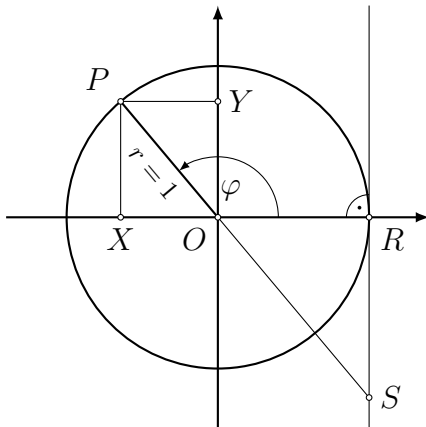


Aufgabe 1



(a) $\overrightarrow{OX} = \cos \varphi$

(b) $\overrightarrow{RS} = \tan \varphi$

(c) $\overrightarrow{OY} = \sin \varphi$

Aufgabe 2

$$\sin^2 \varphi + \cos^2 \varphi = 1 \Rightarrow \cos^2 \varphi = 1 - \sin^2 \varphi = 1 - \frac{12}{25} = \frac{13}{25} \Rightarrow \cos \varphi = \frac{\sqrt{13}}{5}$$

Aufgabe 3

$$\tan \varphi = \frac{\sin \varphi}{\cos \varphi} = \frac{4}{3} \Rightarrow \sin \varphi = \frac{4}{3} \cos \varphi \Rightarrow \sin^2 \varphi = \frac{16}{9} \cos^2 \varphi$$

$$\sin^2 \varphi + \cos^2 \varphi = 1 \Rightarrow \frac{16}{9} \cos^2 \varphi + \cos^2 \varphi = 1 \Rightarrow \frac{25}{9} \cos^2 \varphi = 1$$

$$\cos^2 \varphi = \frac{9}{25} \Rightarrow \cos \varphi = \frac{3}{5}$$

$$\sin^2 \varphi = 1 - \cos^2 \varphi = \frac{16}{25} \Rightarrow \sin \varphi = \frac{4}{5}$$

Aufgabe 4

(a) $\cos(180^\circ) = -1$

(b) $\sin(0^\circ) = 0$

(c) $\tan(90^\circ) = -$

Aufgabe 5

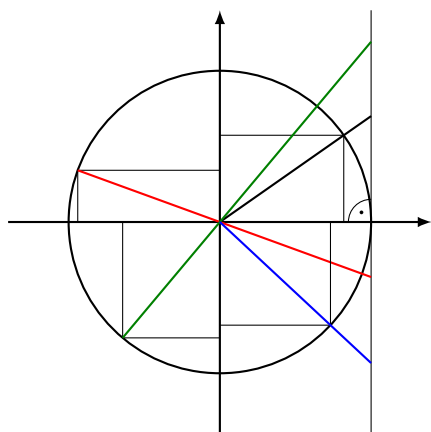
(a) $\cos(88^\circ) > 0$

(b) $\sin(133^\circ) > 0$

(c) $\tan(241^\circ) > 0$

Aufgabe 6

- (a) $\cos \varphi > 0$ und $\tan \varphi > 0$: I. Quadrant
- (b) $\sin \varphi < 0$ und $\cos \varphi > 0$: IV. Quadrant
- (c) $\sin \varphi > 0$ und $\tan \varphi < 0$: II. Quadrant



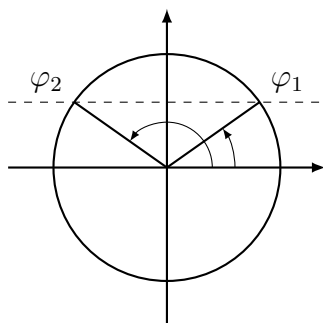
Aufgabe 7

- (a) $\sin(-122^\circ) = -\sin 122^\circ$
- (b) $\tan(-222^\circ) = -\tan 222^\circ$
- (c) $\cos(-43^\circ) = \cos 43^\circ$

Aufgabe 8

- (a) $\tan(102^\circ) = -\cot(12^\circ)$
- (b) $\cos(191^\circ) = -\sin(101^\circ) = -\cos(11^\circ)$
- (c) $\sin(311^\circ) = \cos(221^\circ) = -\sin(131^\circ) = -\cos(41^\circ)$

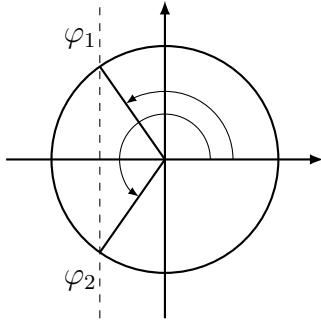
Aufgabe 9



$$\varphi_1 = \arcsin(0.576) = 35.2^\circ$$

$$\varphi_2 = 180^\circ - \varphi_1 = 144.8^\circ$$

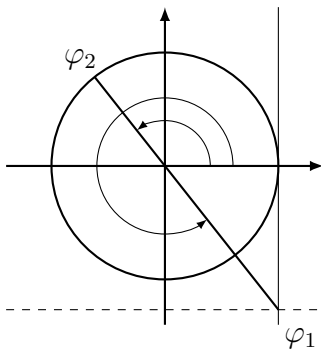
Aufgabe 10



$$\varphi_1 = \arccos(-0.574) = 125.0^\circ$$

$$\varphi_2 = 360^\circ - \varphi_1 = 235^\circ$$

Aufgabe 11



$$\varphi = \arccos(-1.267)^\circ = -51.7^\circ$$

$$\varphi_1 = \varphi + 360^\circ = 308.3^\circ$$

$$\varphi_2 = \varphi + 180^\circ = 128.3^\circ$$