Trigonometrie (einfache Gleichungen)

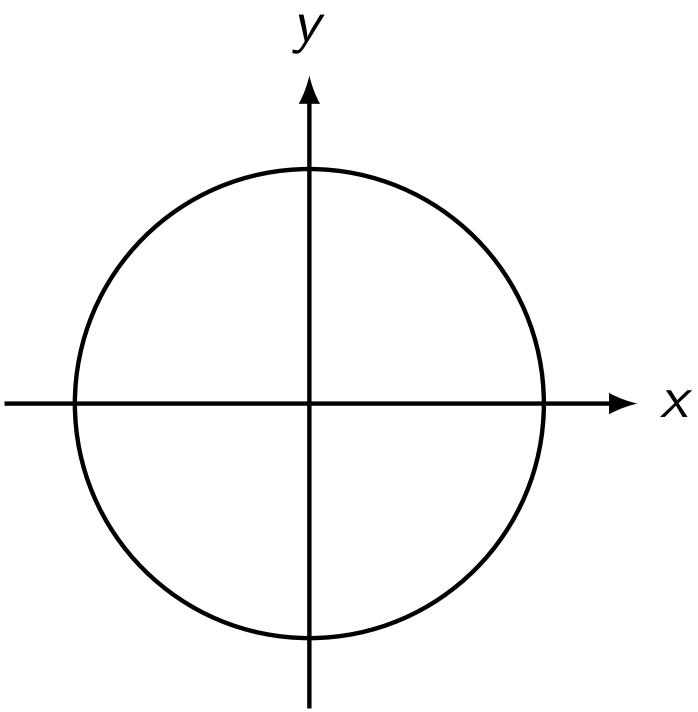
Übungen

Bestimme alle Lösungen im Intervall $[0°, 360°)$ und runde auf 2 Nachkommastellen.

Aufgabe 1

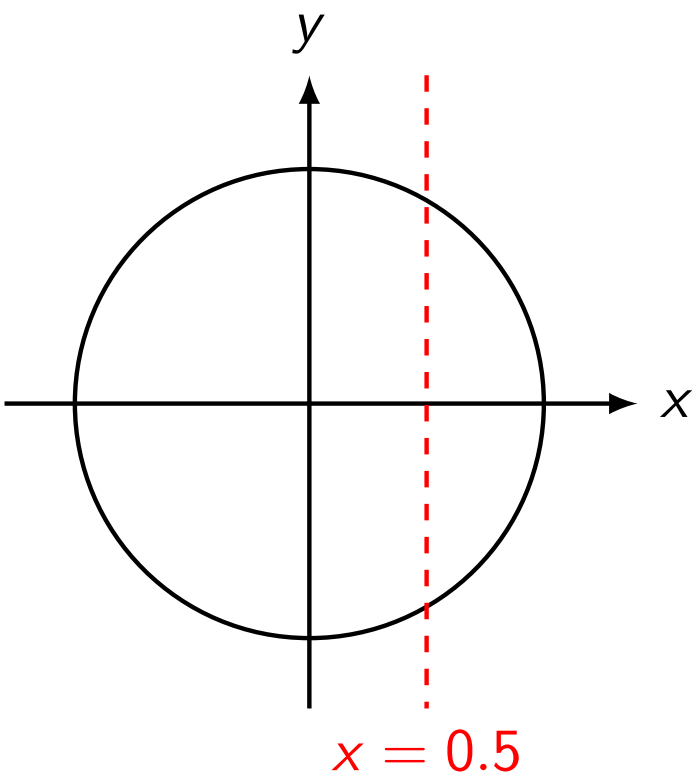
$$\cos(\alpha) = 0.5$$

Aufgabe 1



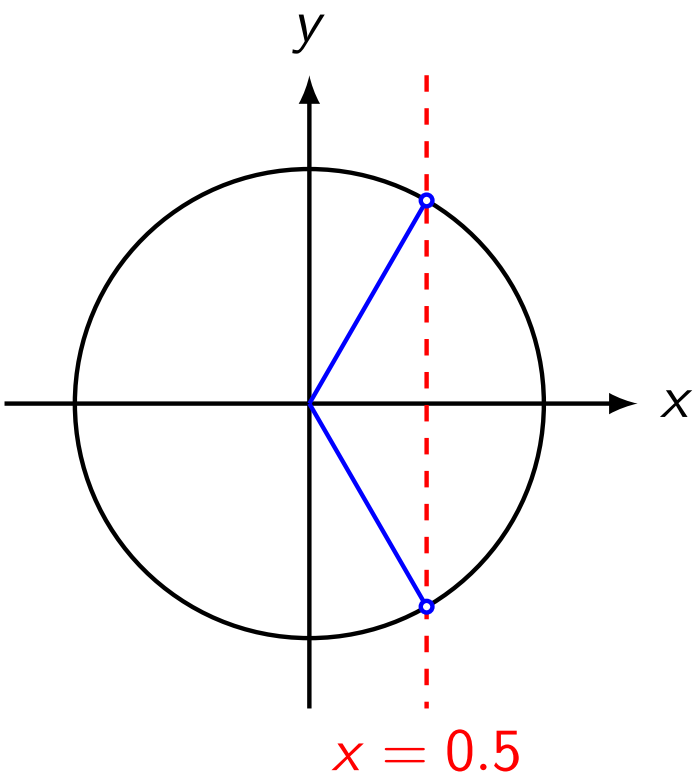
$$\cos(\alpha) = 0.5$$

Aufgabe 1



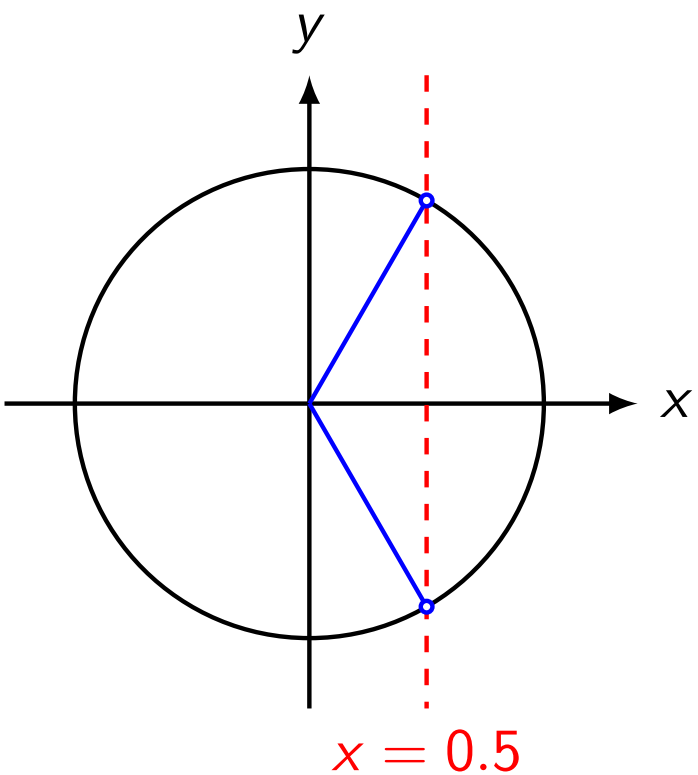
$$\cos(\alpha) = 0.5$$

Aufgabe 1



$$\cos(\alpha) = 0.5$$

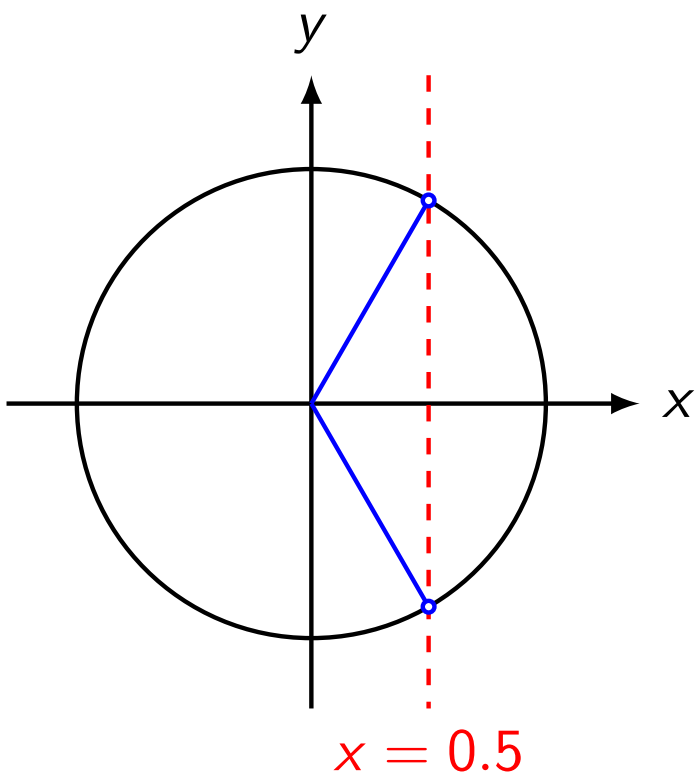
Aufgabe 1



$$\cos(\alpha) = 0.5$$

$$\alpha = \arccos(0.5) = 60°$$

Aufgabe 1

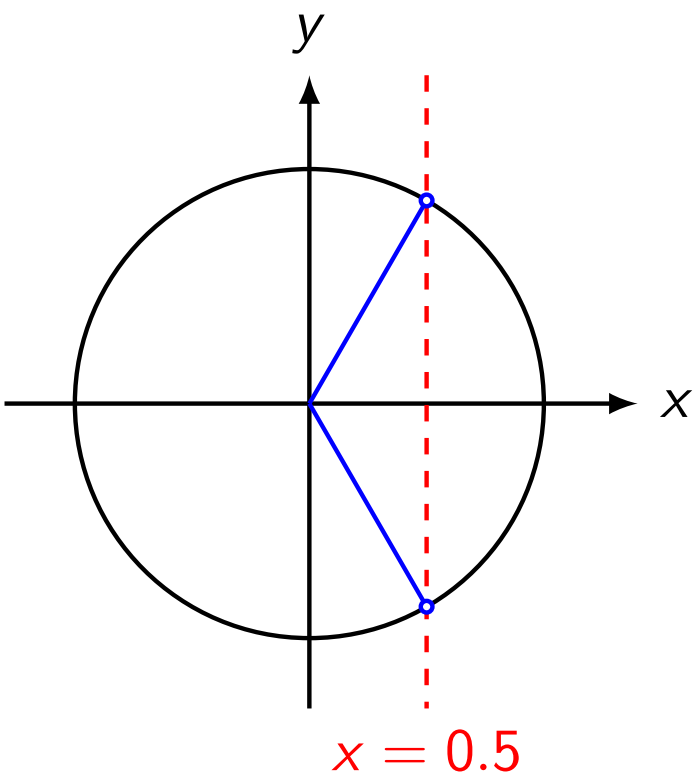


$$\cos(\alpha) = 0.5$$

$$\alpha = \arccos(0.5) = 60°$$

$$\alpha_1 = 60°$$

Aufgabe 1



$$\cos(\alpha) = 0.5$$

$$\alpha = \arccos(0.5) = 60^\circ$$

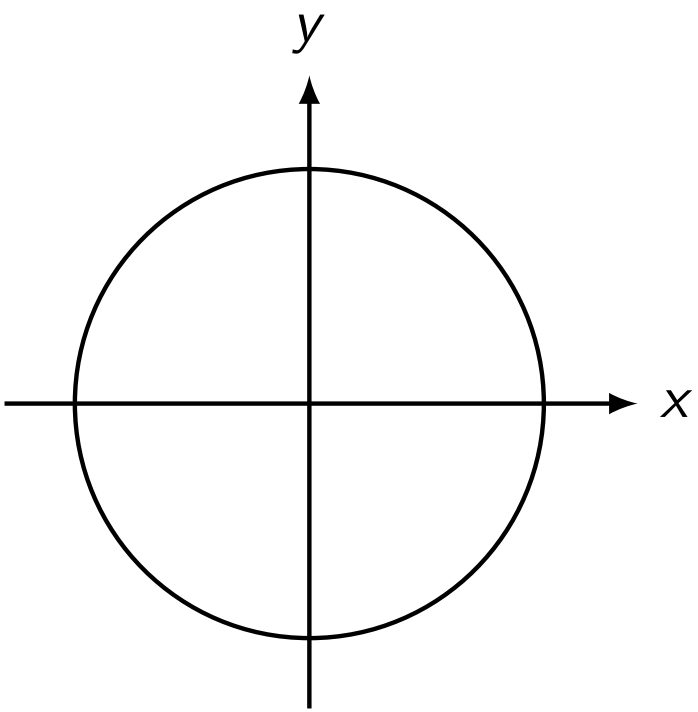
$$\alpha_1 = 60^\circ$$

$$\alpha_2 = 360^\circ - \alpha = 300^\circ$$

Aufgabe 2

$$\sin(\alpha) = 0.8$$

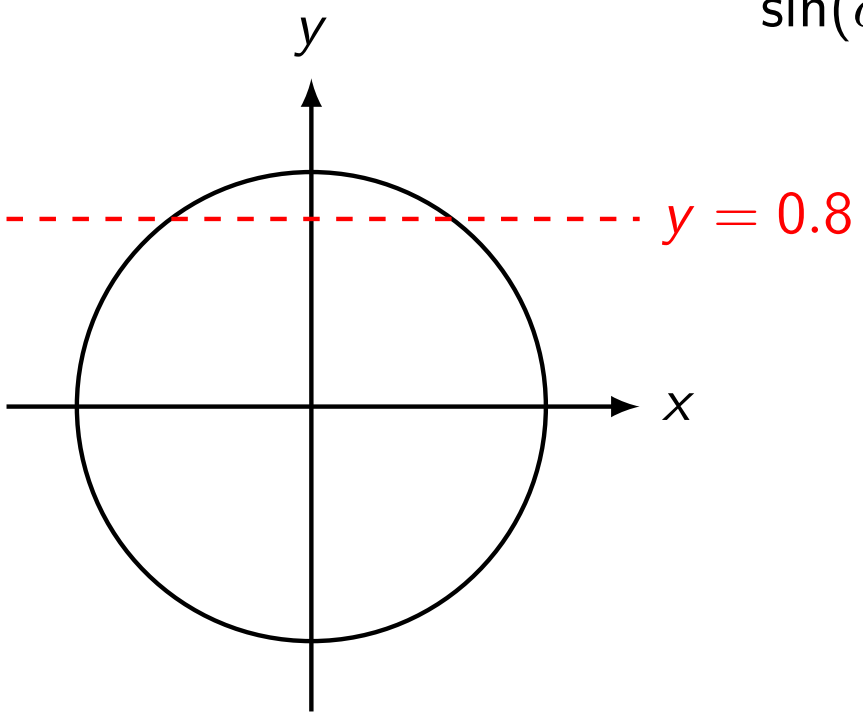
Aufgabe 2



$$\sin(\alpha) = 0.8$$

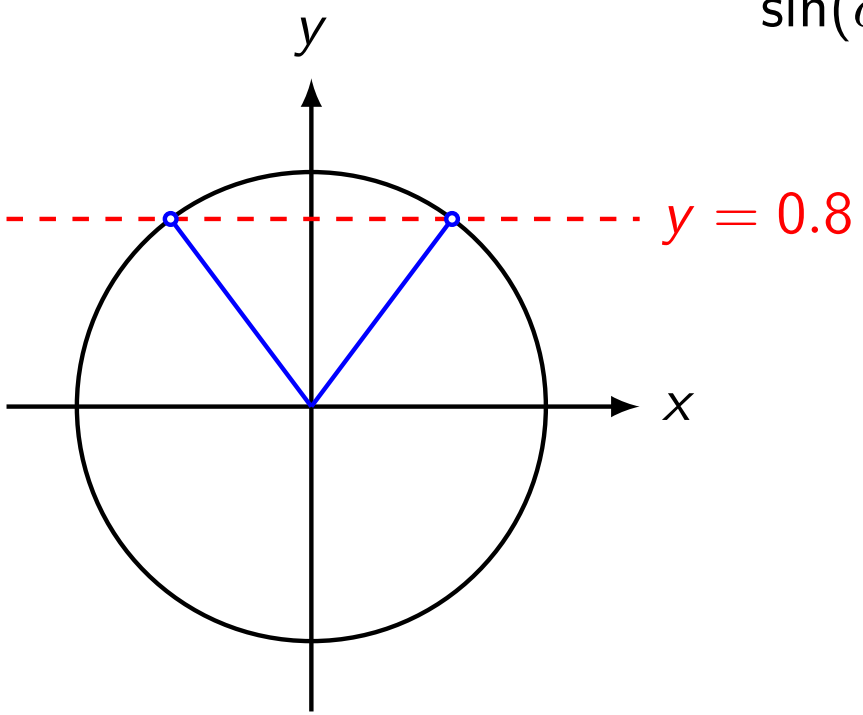
Aufgabe 2

$$\sin(\alpha) = 0.8$$

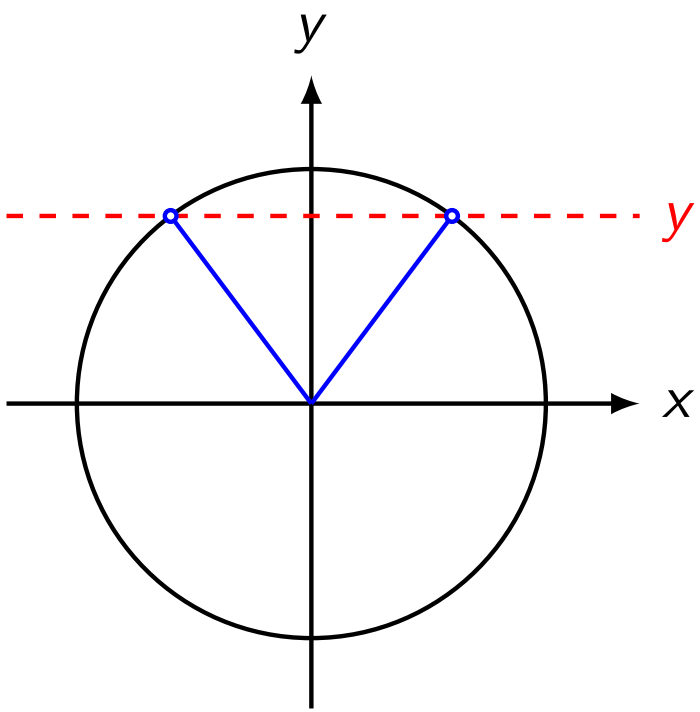


Aufgabe 2

$$\sin(\alpha) = 0.8$$



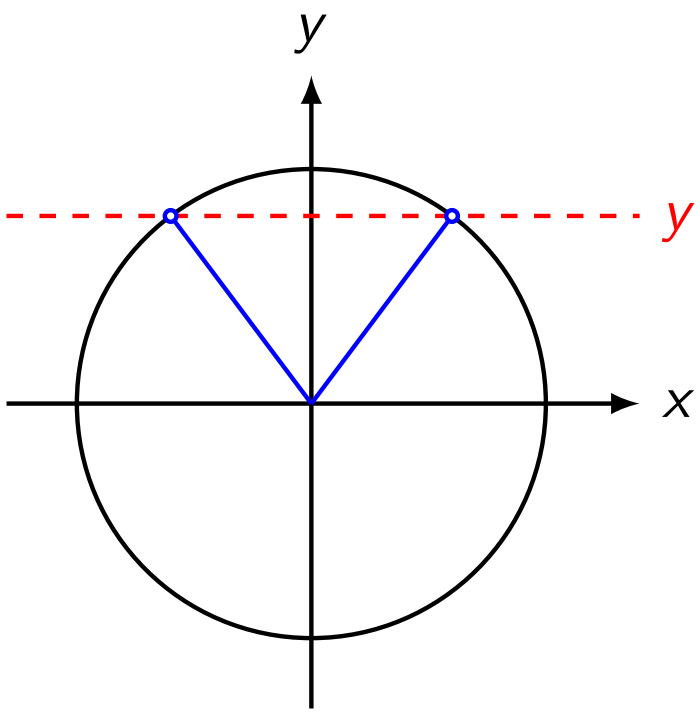
Aufgabe 2



$$\sin(\alpha) = 0.8$$

$$\alpha = \arcsin(0.8) = 53.13°$$

Aufgabe 2

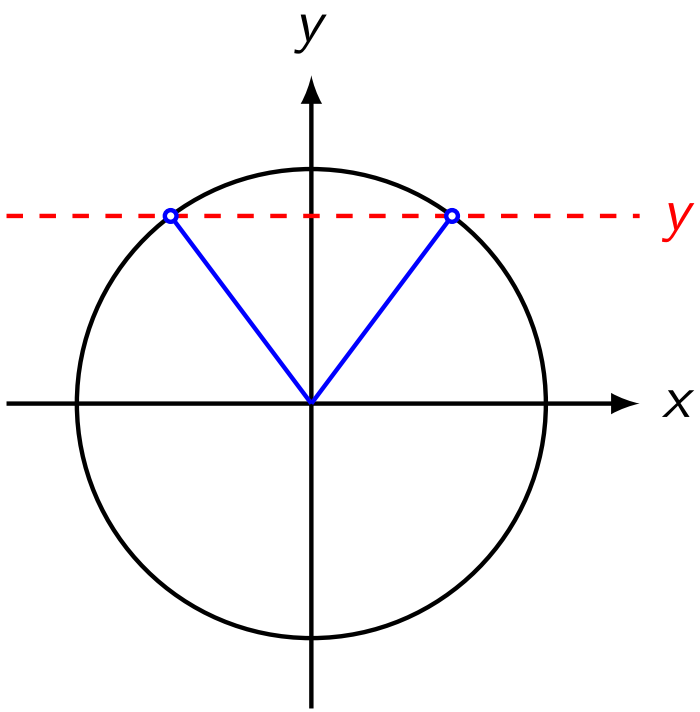


$$\sin(\alpha) = 0.8$$

$$\alpha = \arcsin(0.8) = 53.13°$$

$$\alpha_1 = 53.13°$$

Aufgabe 2



$$\sin(\alpha) = 0.8$$

$$\alpha = \arcsin(0.8) = 53.13°$$

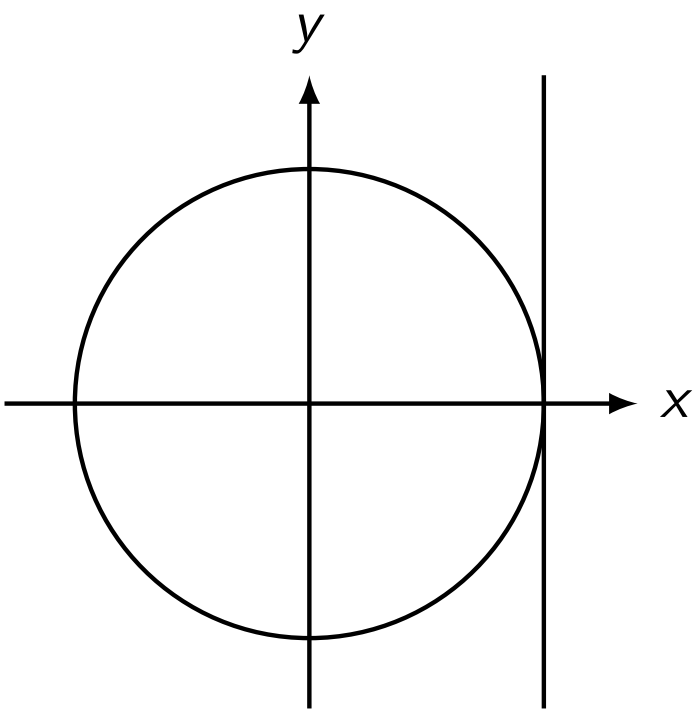
$$\alpha_1 = 53.13°$$

$$\alpha_2 = 180° - \alpha = 126.87°$$

Aufgabe 3

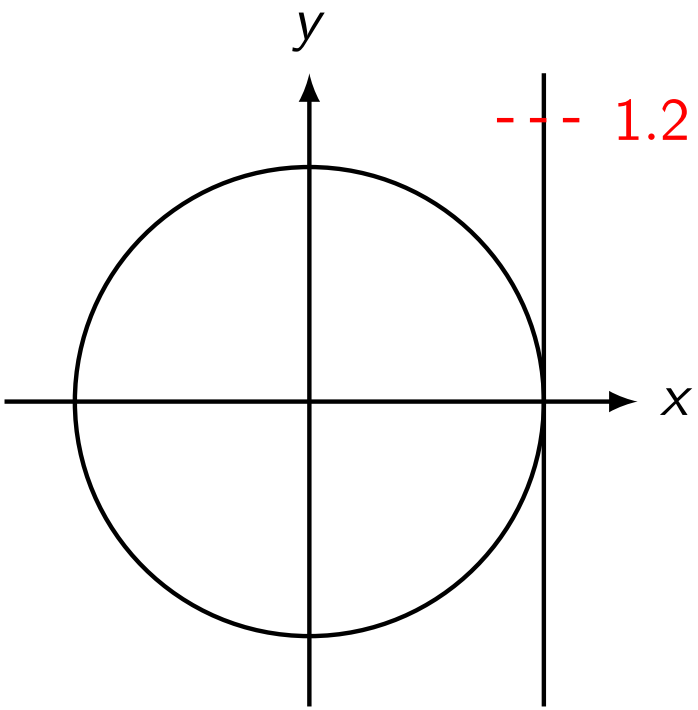
$$\tan(\alpha) = 1.2$$

Aufgabe 3



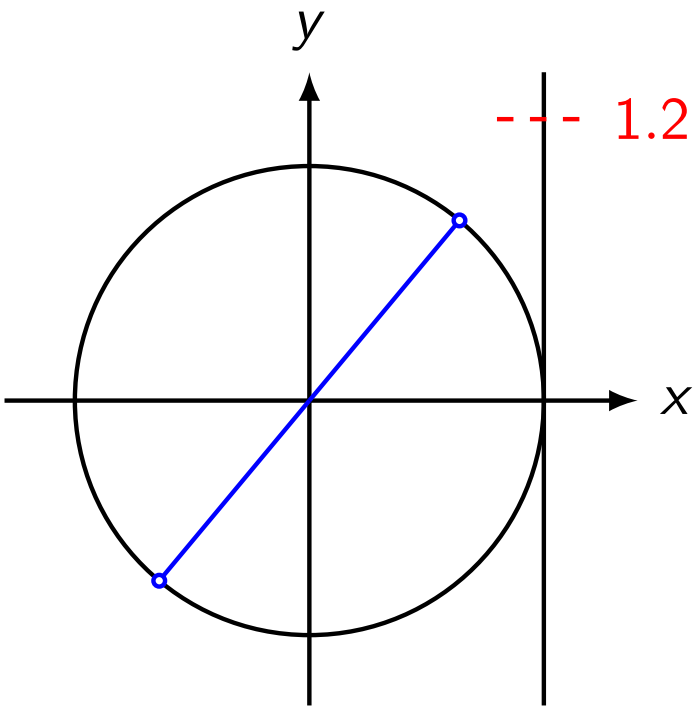
$\tan(\alpha) = 1.2$

Aufgabe 3



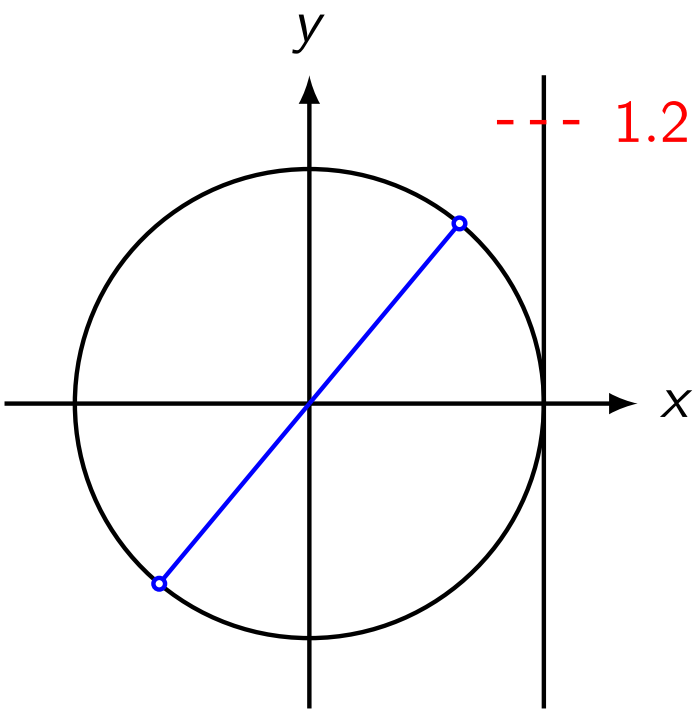
$\tan(\alpha) = 1.2$

Aufgabe 3



$$\tan(\alpha) = 1.2$$

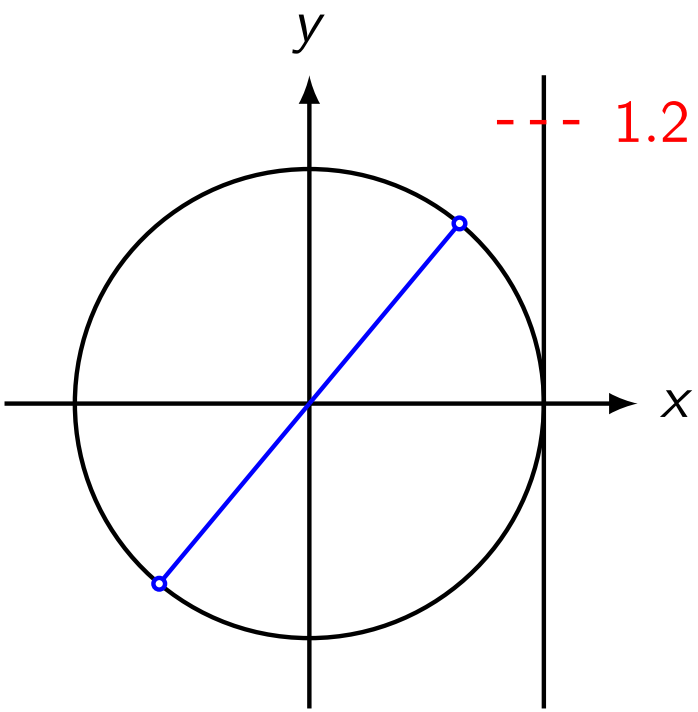
Aufgabe 3



$$\tan(\alpha) = 1.2$$

$$\alpha = \arctan(1.2) = 50.19°$$

Aufgabe 3

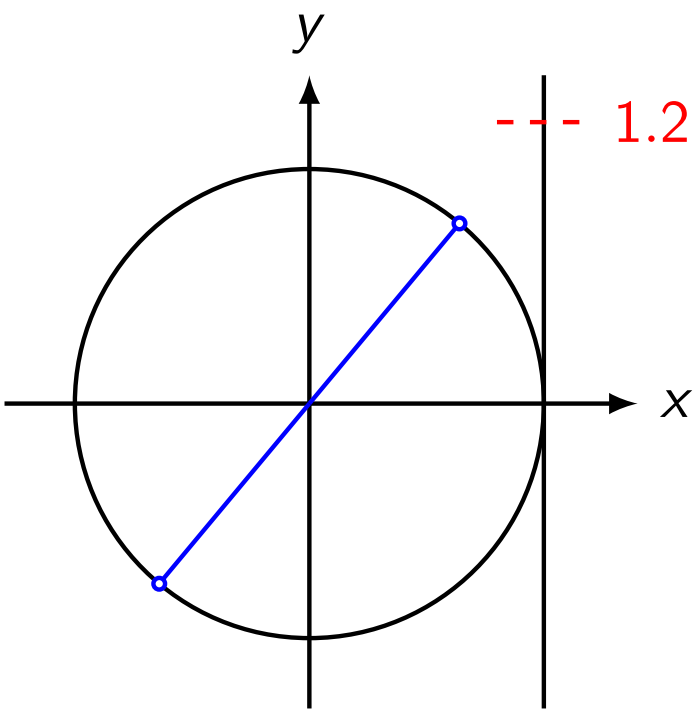


$$\tan(\alpha) = 1.2$$

$$\alpha = \arctan(1.2) = 50.19°$$

$$\alpha_1 = 50.19°$$

Aufgabe 3



$$\tan(\alpha) = 1.2$$

$$\alpha = \arctan(1.2) = 50.19°$$

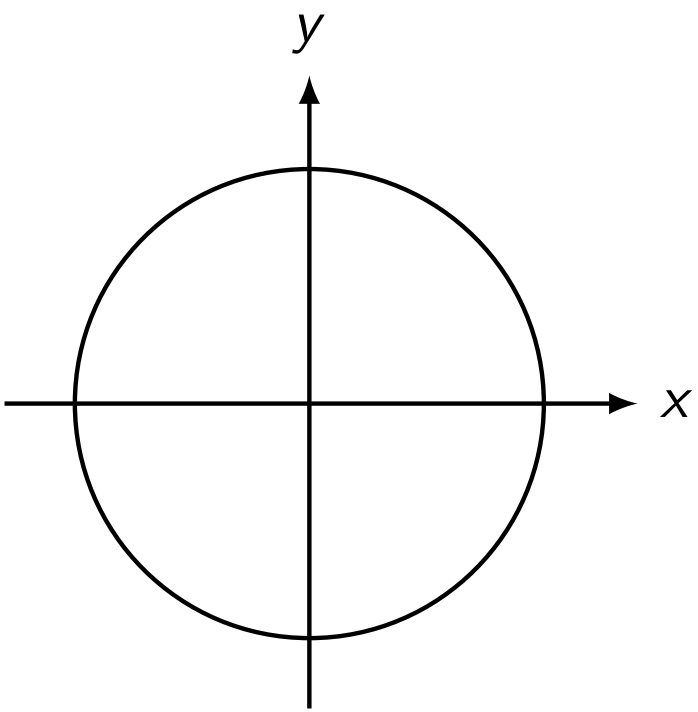
$$\alpha_1 = 50.19°$$

$$\alpha_2 = \alpha + 180° = 230.19°$$

Aufgabe 4

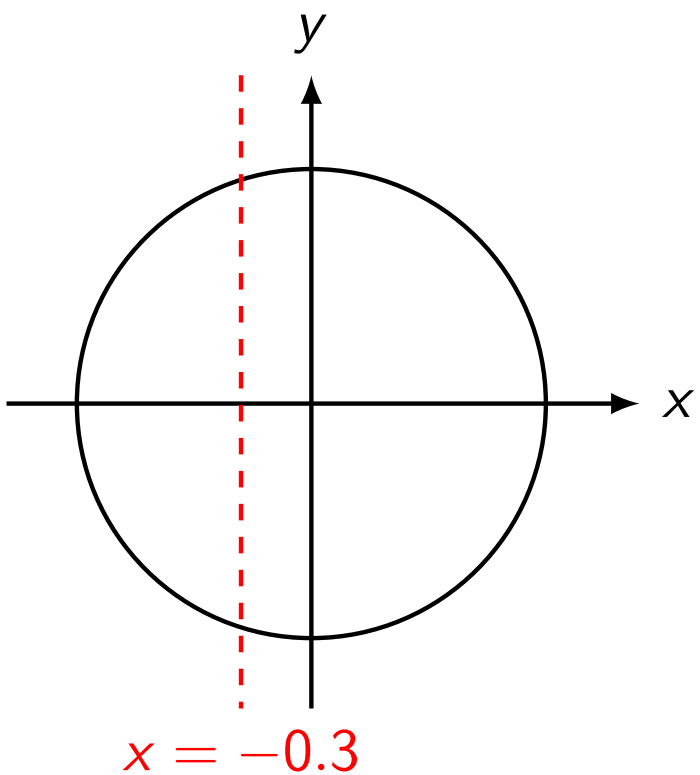
$$\cos(\alpha) = -0.3$$

Aufgabe 4



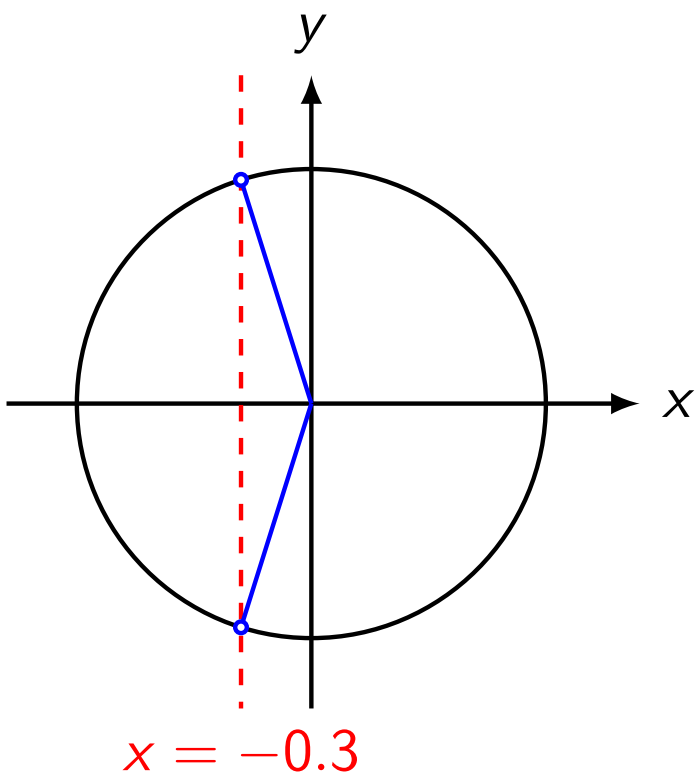
$$\cos(\alpha) = -0.3$$

Aufgabe 4



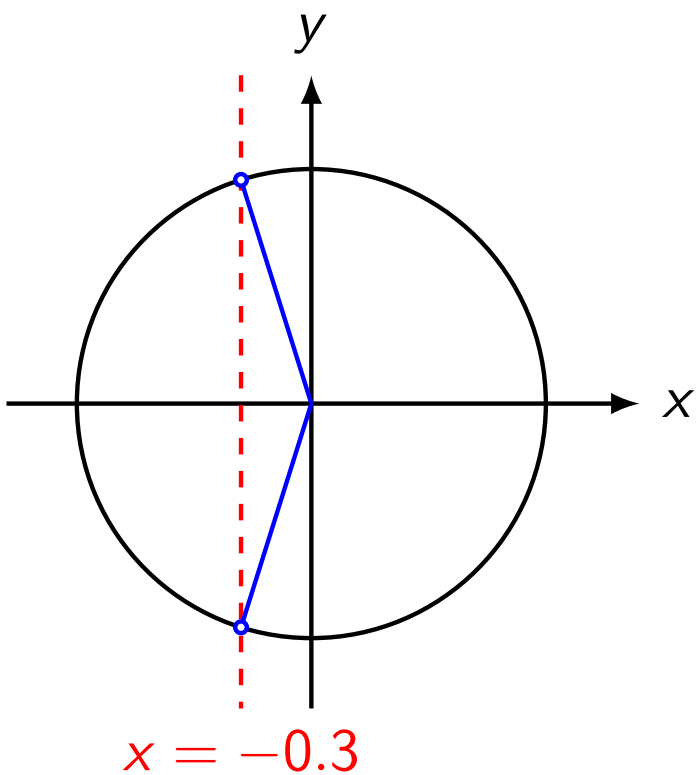
$$\cos(\alpha) = -0.3$$

Aufgabe 4



$$\cos(\alpha) = -0.3$$

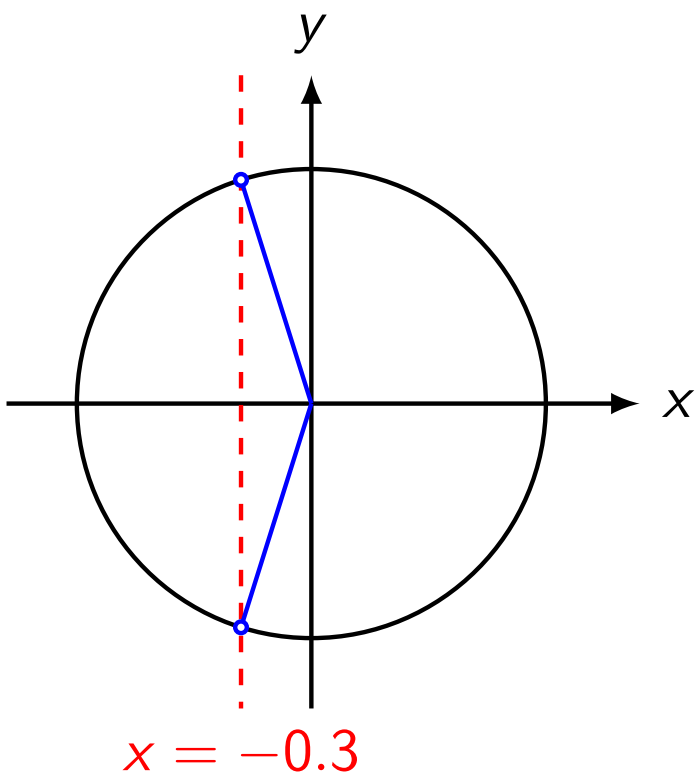
Aufgabe 4



$$\cos(\alpha) = -0.3$$

$$\alpha = \arccos(-0.3) = 107.46°$$

Aufgabe 4

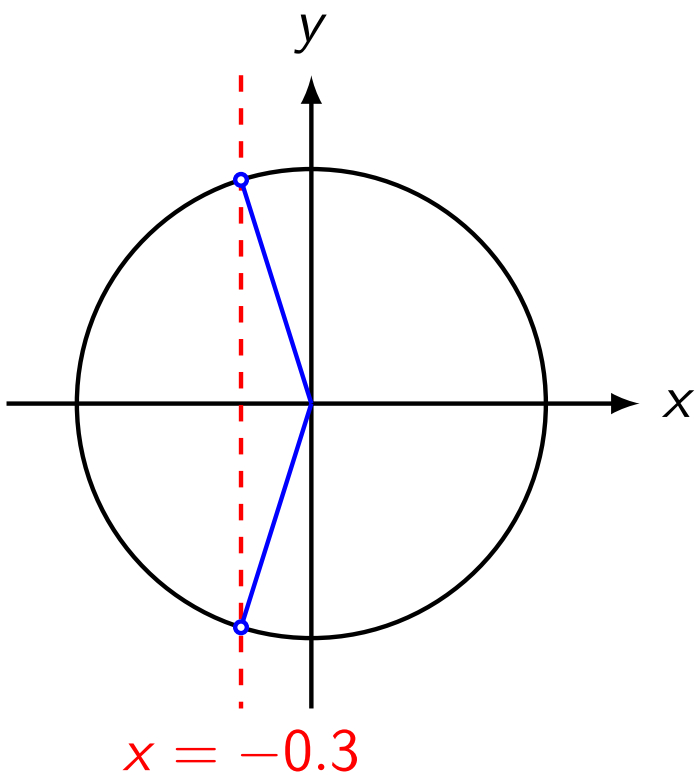


$$\cos(\alpha) = -0.3$$

$$\alpha = \arccos(-0.3) = 107.46°$$

$$\alpha_1 = 107.46°$$

Aufgabe 4



$$\cos(\alpha) = -0.3$$

$$\alpha = \arccos(-0.3) = 107.46^\circ$$

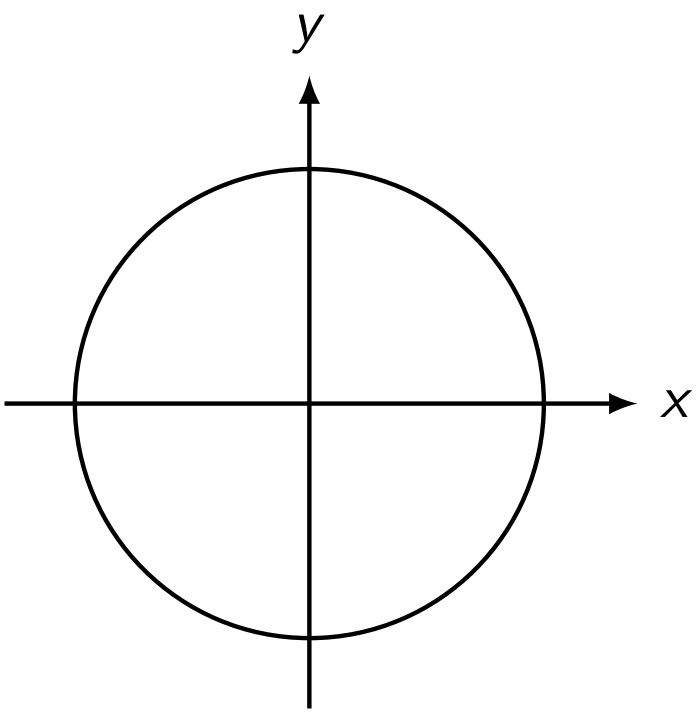
$$\alpha_1 = 107.46^\circ$$

$$\alpha_2 = 360^\circ - \alpha = 252.54^\circ$$

Aufgabe 5

$$\sin(\alpha) = -0.7$$

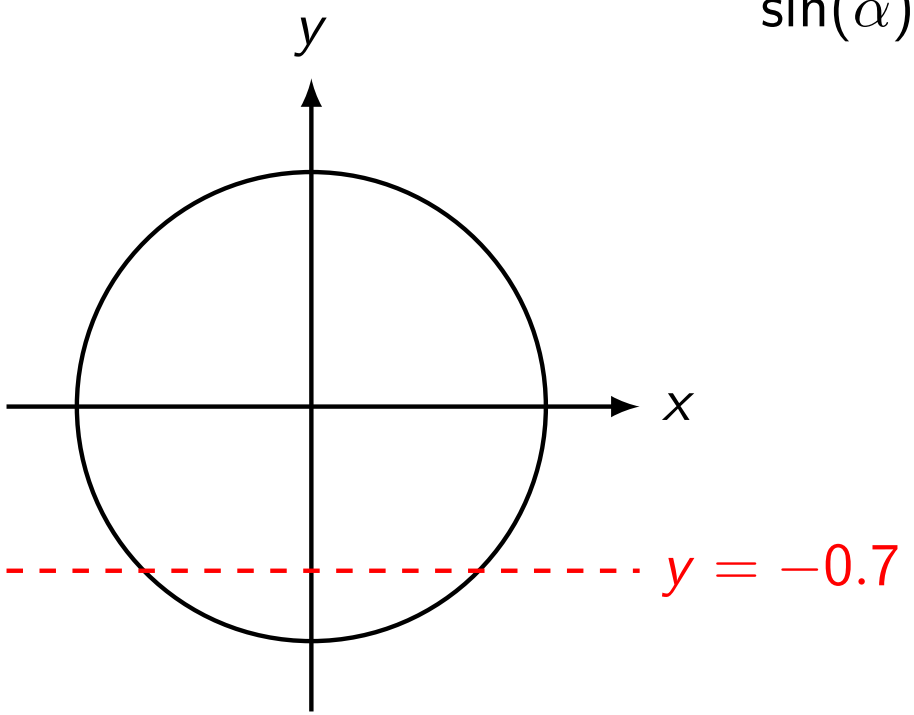
Aufgabe 5



$$\sin(\alpha) = -0.7$$

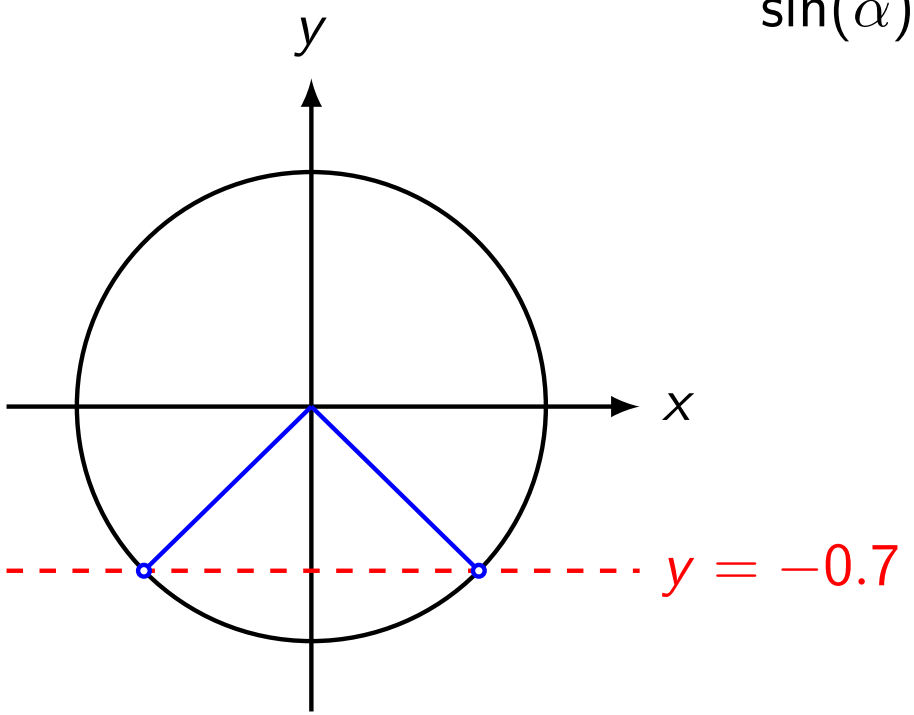
Aufgabe 5

$$\sin(\alpha) = -0.7$$

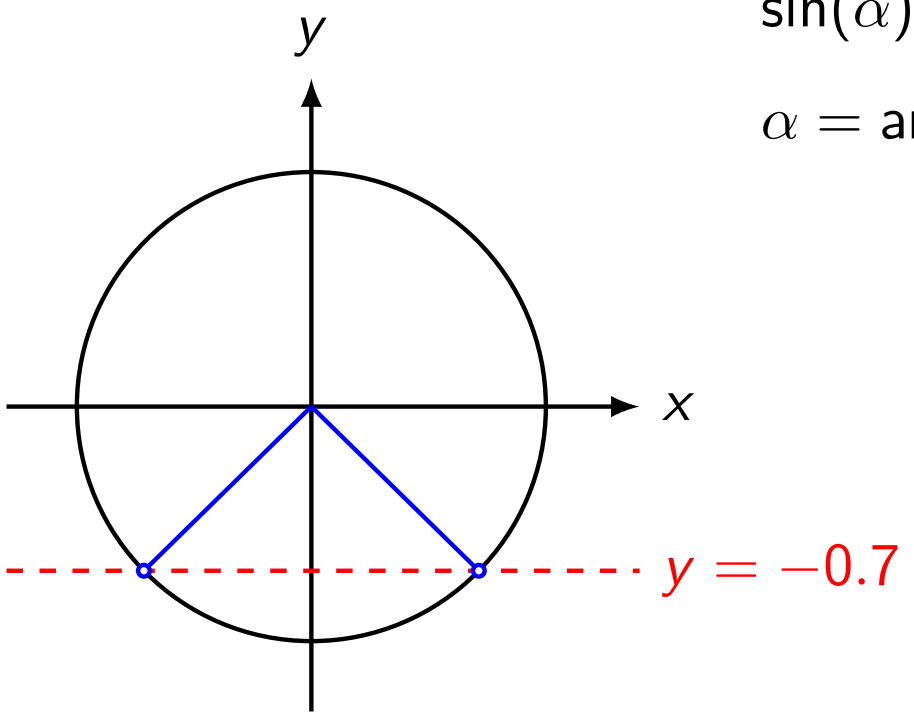


Aufgabe 5

$$\sin(\alpha) = -0.7$$



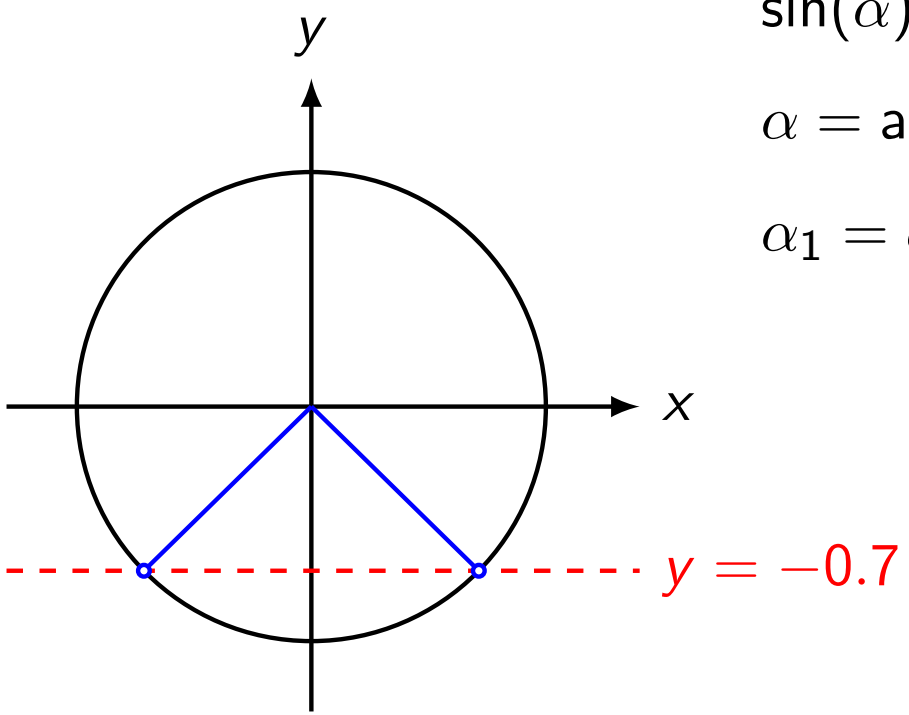
Aufgabe 5



$$\sin(\alpha) = -0.7$$

$$\alpha = \arcsin(-0.7) = -44.43°$$

Aufgabe 5

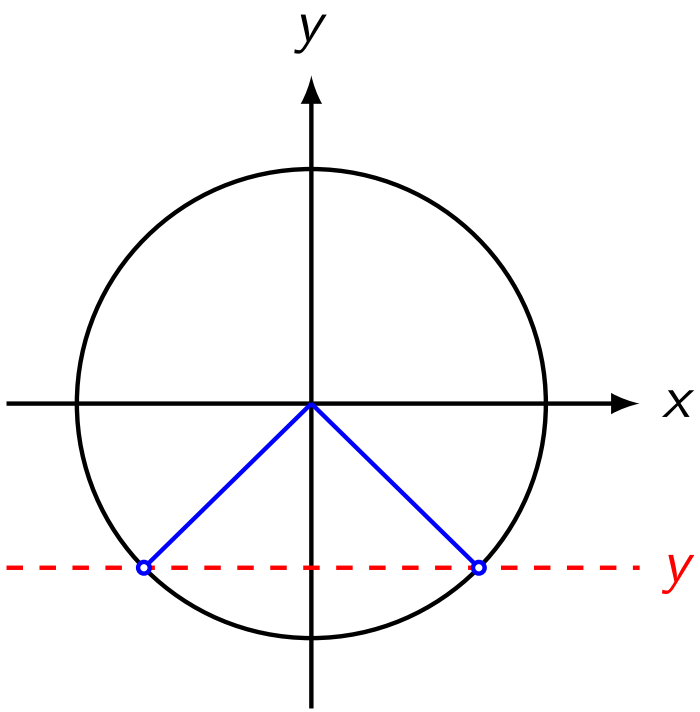


$$\sin(\alpha) = -0.7$$

$$\alpha = \arcsin(-0.7) = -44.43^\circ$$

$$\alpha_1 = \alpha + 360^\circ = 315.57^\circ$$

Aufgabe 5



$$\sin(\alpha) = -0.7$$

$$\alpha = \arcsin(-0.7) = -44.43^\circ$$

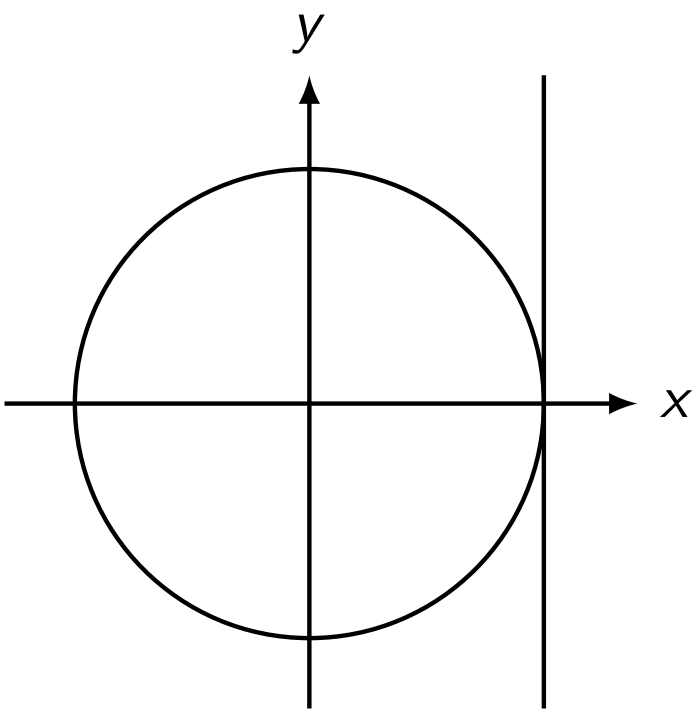
$$\alpha_1 = \alpha + 360^\circ = 315.57^\circ$$

$$\alpha_2 = 180^\circ - \alpha = 224.43^\circ$$

Aufgabe 6

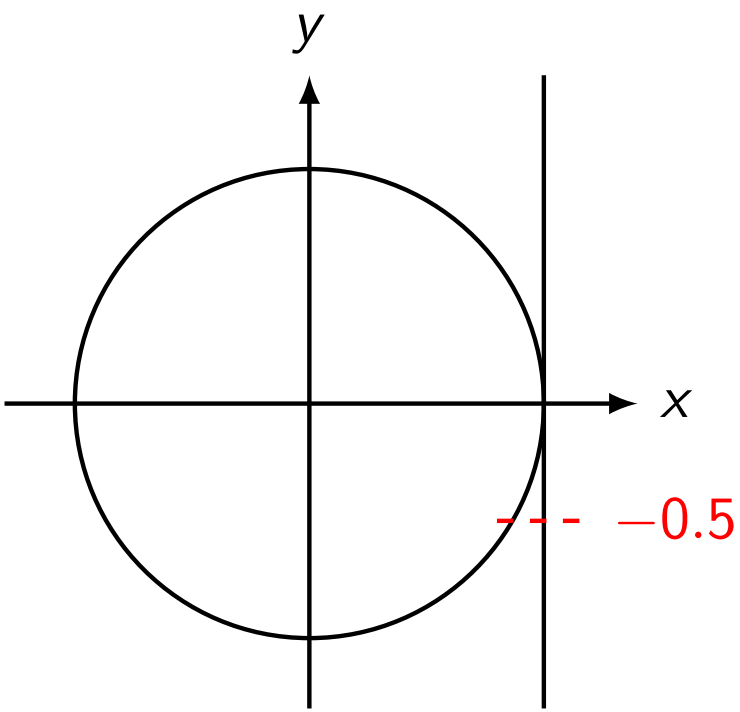
$$\tan(\alpha) = -0.5$$

Aufgabe 6



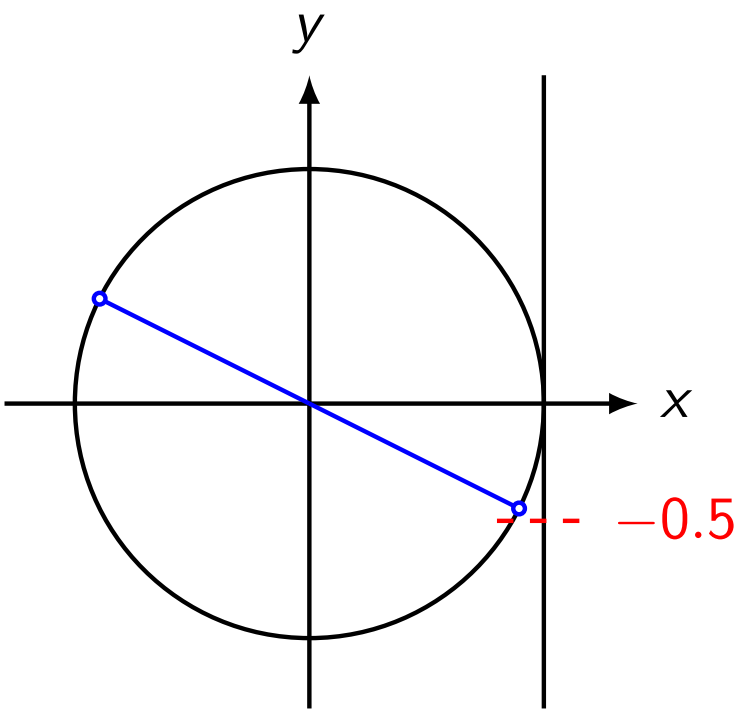
$$\tan(\alpha) = -0.5$$

Aufgabe 6



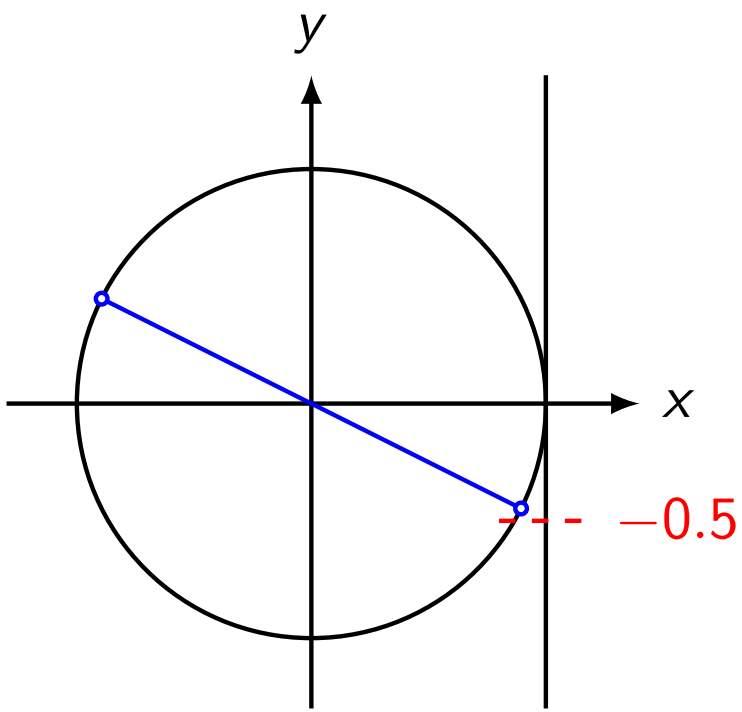
$$\tan(\alpha) = -0.5$$

Aufgabe 6



$$\tan(\alpha) = -0.5$$

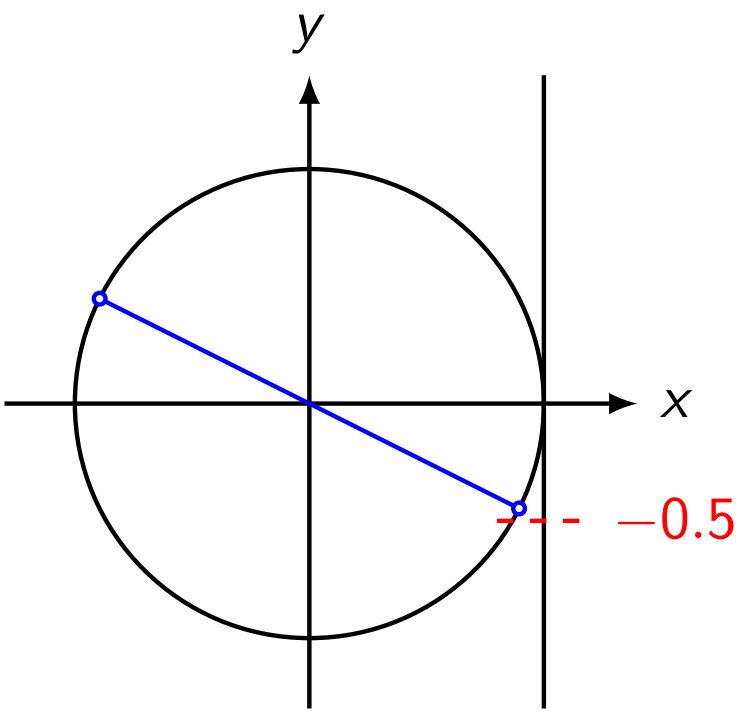
Aufgabe 6



$$\tan(\alpha) = -0.5$$

$$\alpha = \arctan(-0.5) = -26.57°$$

Aufgabe 6

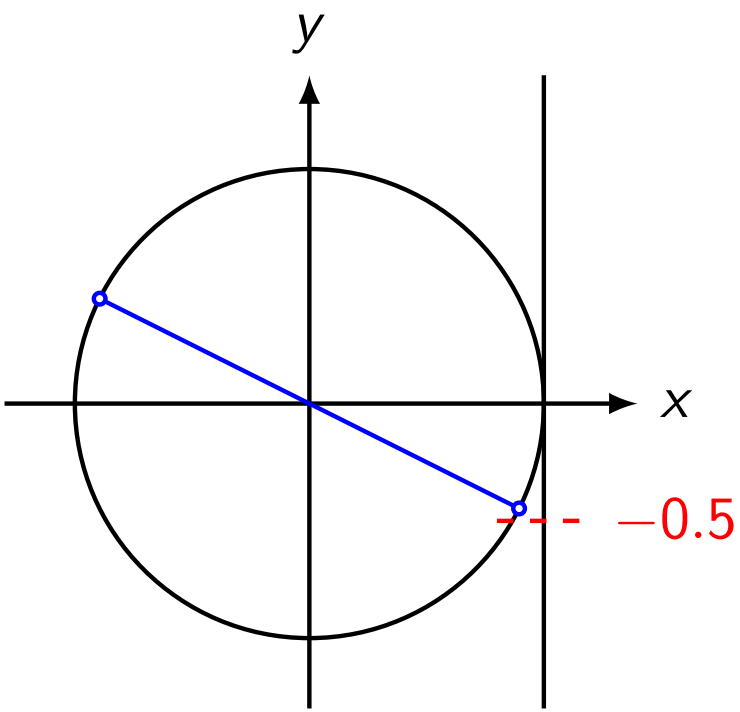


$$\tan(\alpha) = -0.5$$

$$\alpha = \arctan(-0.5) = -26.57°$$

$$\alpha_1 = \alpha + 360° = 333.43°$$

Aufgabe 6



$$\tan(\alpha) = -0.5$$

$$\alpha = \arctan(-0.5) = -26.57°$$

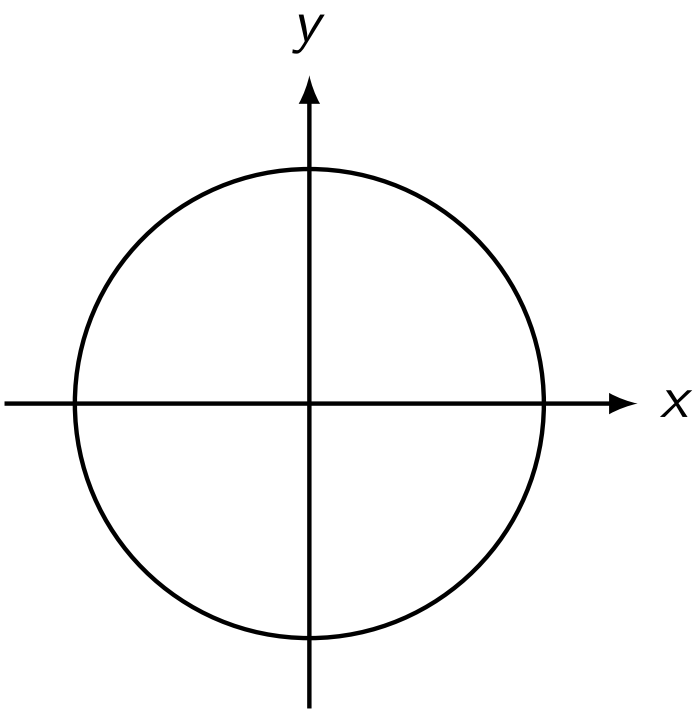
$$\alpha_1 = \alpha + 360° = 333.43°$$

$$\alpha_2 = \alpha + 180° = 153.43°$$

Aufgabe 7

$$\sin(\alpha) = 0.4$$

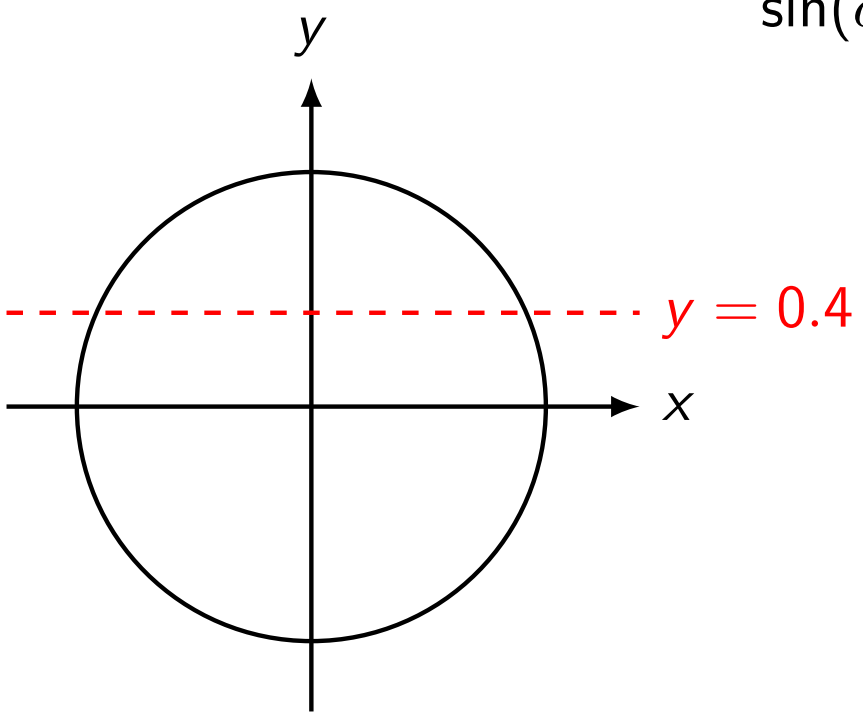
Aufgabe 7



$$\sin(\alpha) = 0.4$$

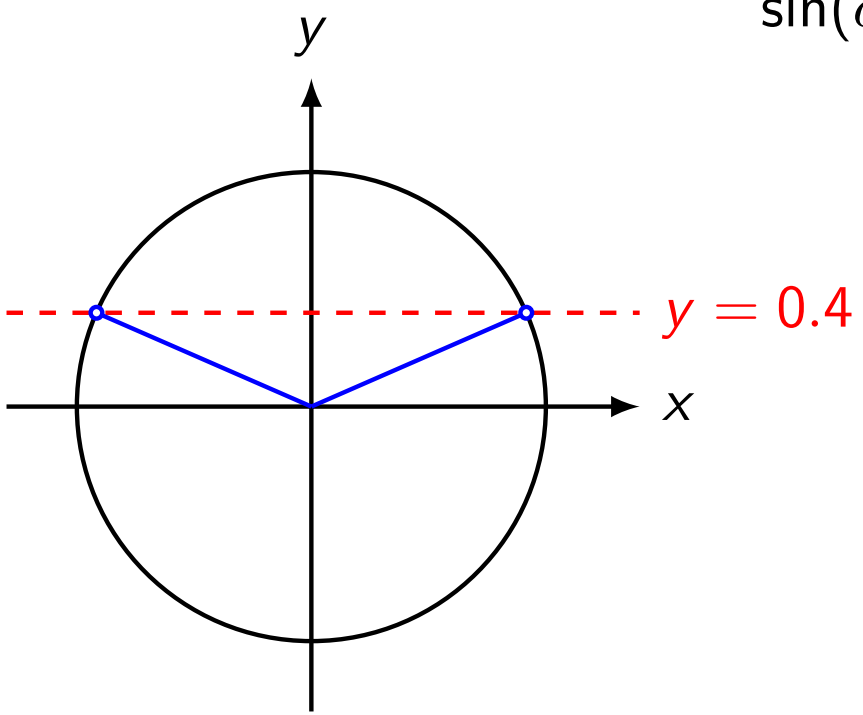
Aufgabe 7

$$\sin(\alpha) = 0.4$$

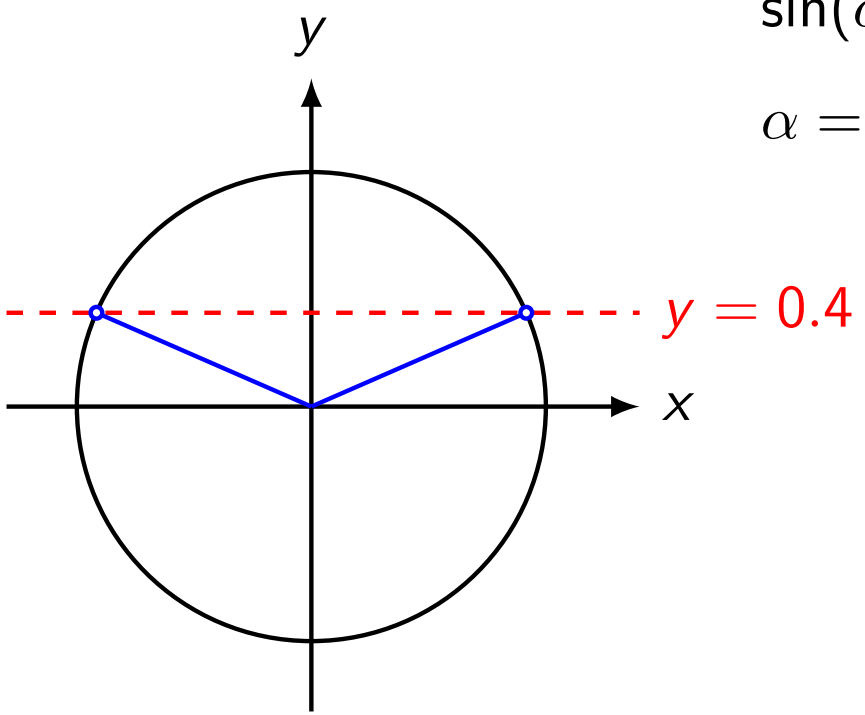


Aufgabe 7

$$\sin(\alpha) = 0.4$$



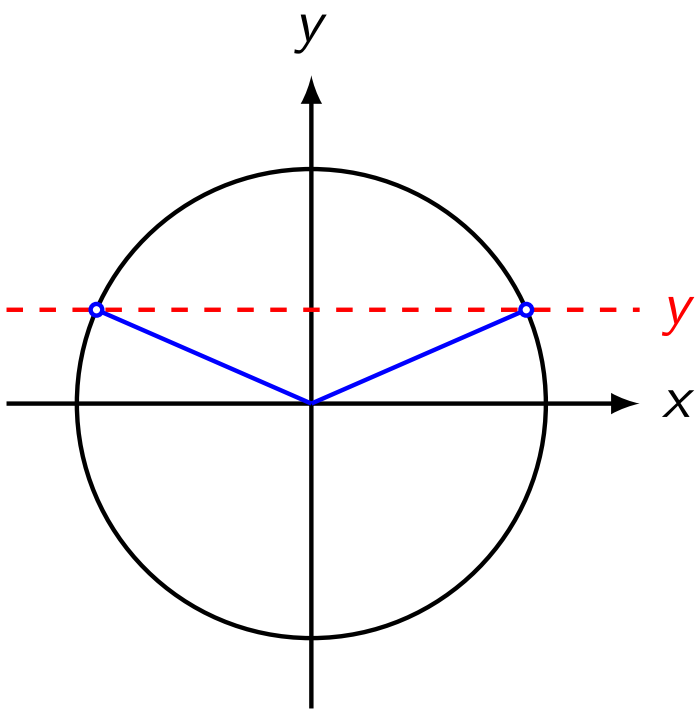
Aufgabe 7



$$\sin(\alpha) = 0.4$$

$$\alpha = \arcsin(0.4) = 23.58°$$

Aufgabe 7

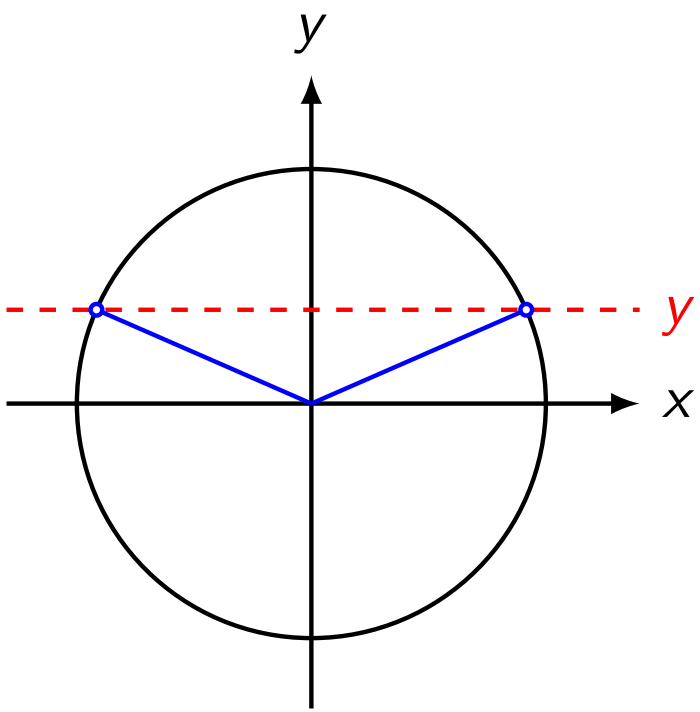


$$\sin(\alpha) = 0.4$$

$$\alpha = \arcsin(0.4) = 23.58°$$

$$\alpha_1 = 23.58°$$

Aufgabe 7



$$\sin(\alpha) = 0.4$$

$$\alpha = \arcsin(0.4) = 23.58°$$

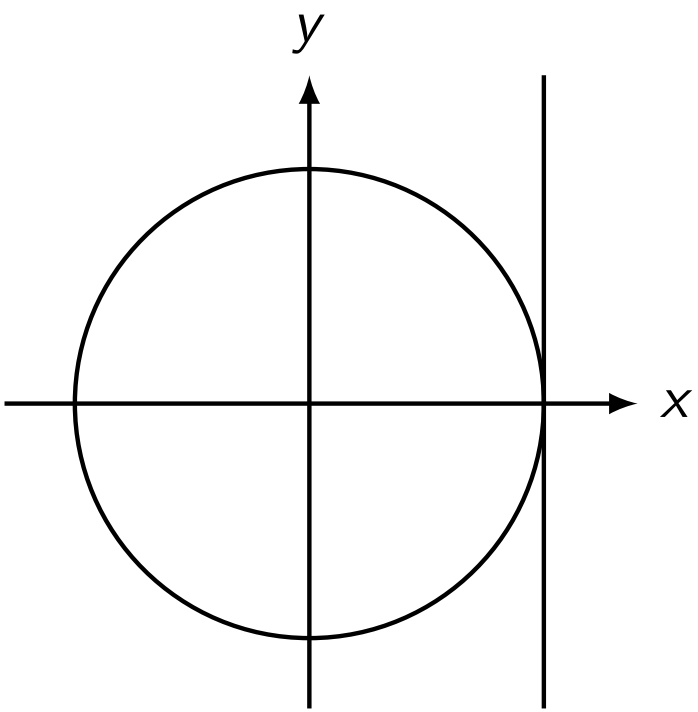
$$\alpha_1 = 23.58°$$

$$\alpha_2 = 180° - \alpha = 156.42°$$

Aufgabe 8

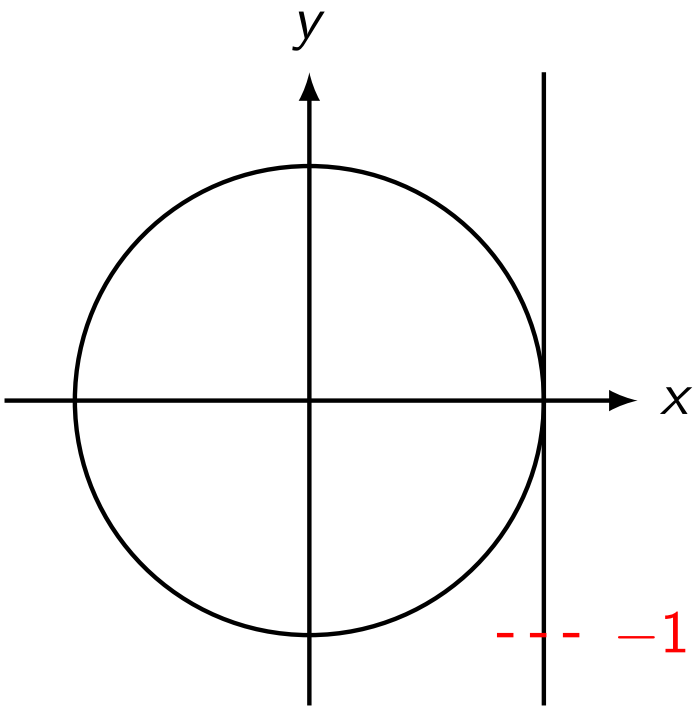
$$\tan(\alpha) = -1$$

Aufgabe 8



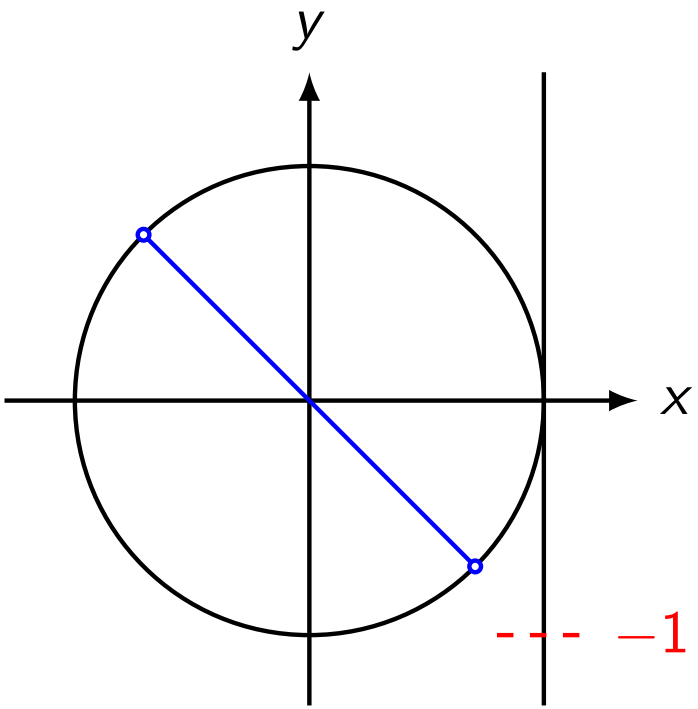
$$\tan(\alpha) = -1$$

Aufgabe 8



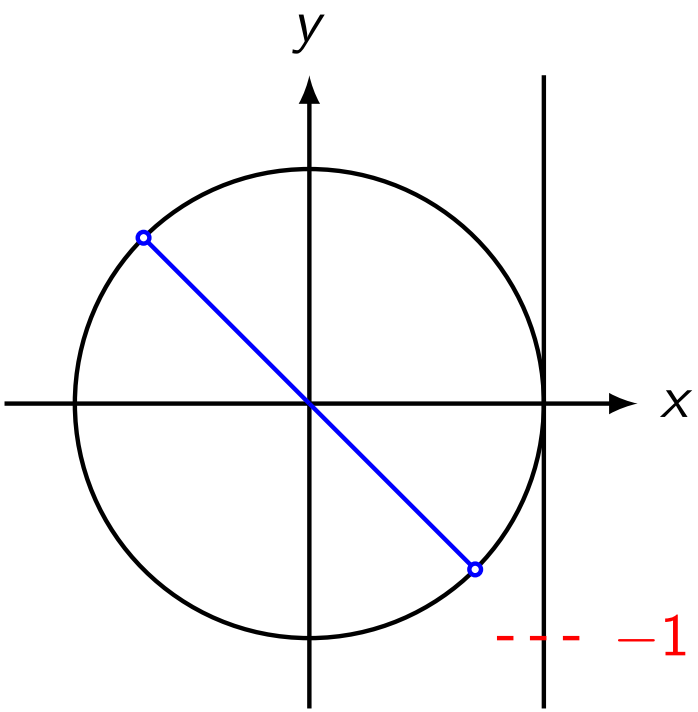
$$\tan(\alpha) = -1$$

Aufgabe 8



$$\tan(\alpha) = -1$$

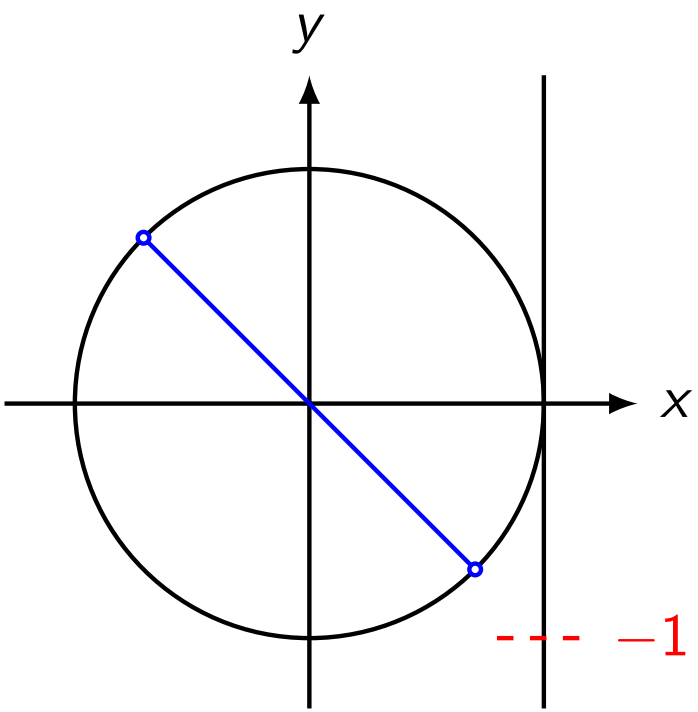
Aufgabe 8



$$\tan(\alpha) = -1$$

$$\alpha = \arctan(-1) = -45°$$

Aufgabe 8

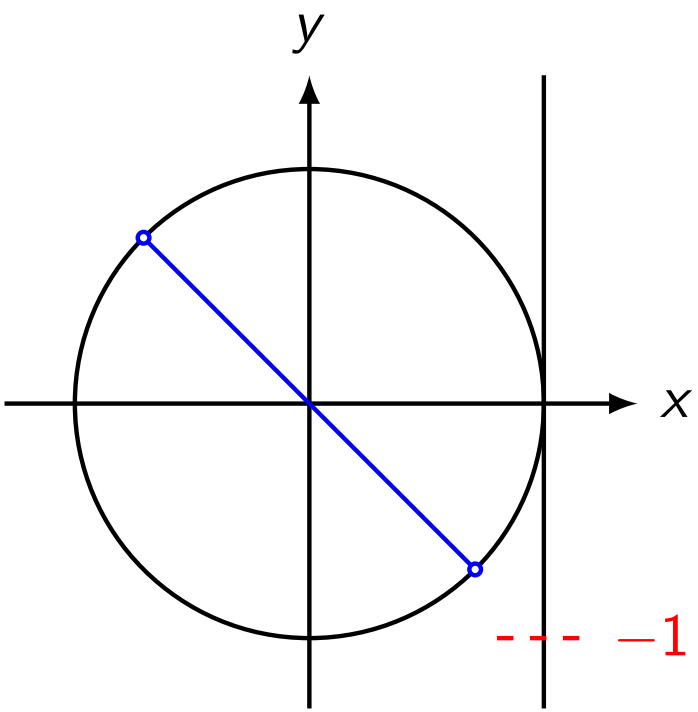


$$\tan(\alpha) = -1$$

$$\alpha = \arctan(-1) = -45°$$

$$\alpha_1 = \alpha + 360° = 315°$$

Aufgabe 8



$$\tan(\alpha) = -1$$

$$\alpha = \arctan(-1) = -45°$$

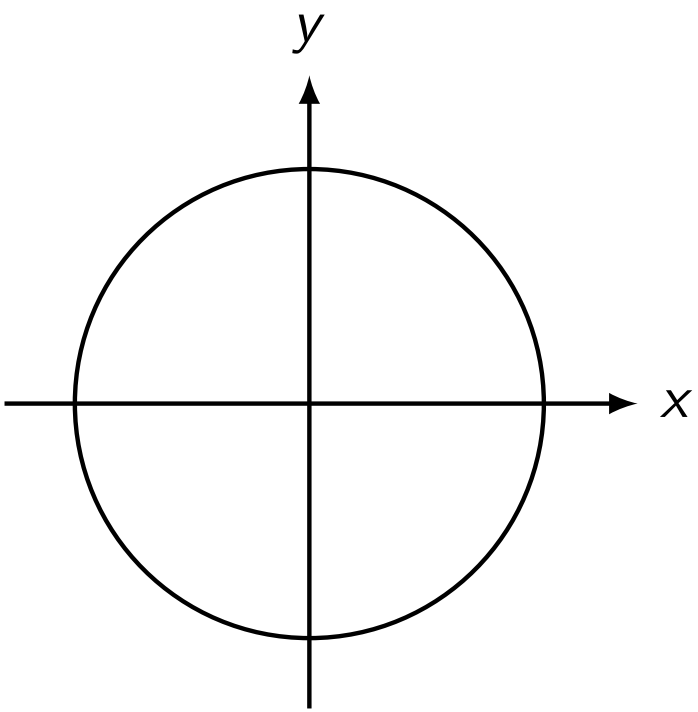
$$\alpha_1 = \alpha + 360° = 315°$$

$$\alpha_2 = \alpha + 180° = 135°$$

Aufgabe 9

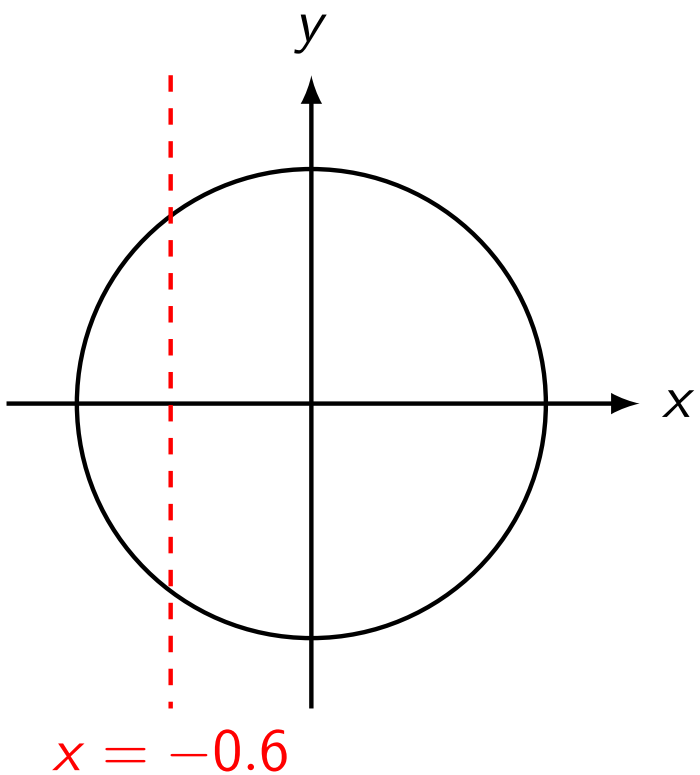
$$\cos(\alpha) = -0.6$$

Aufgabe 9



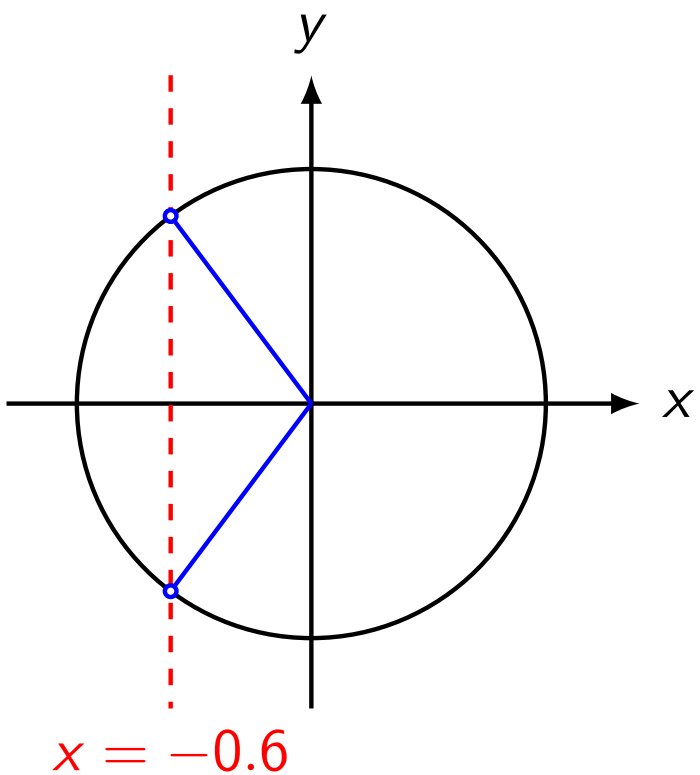
$$\cos(\alpha) = -0.6$$

Aufgabe 9



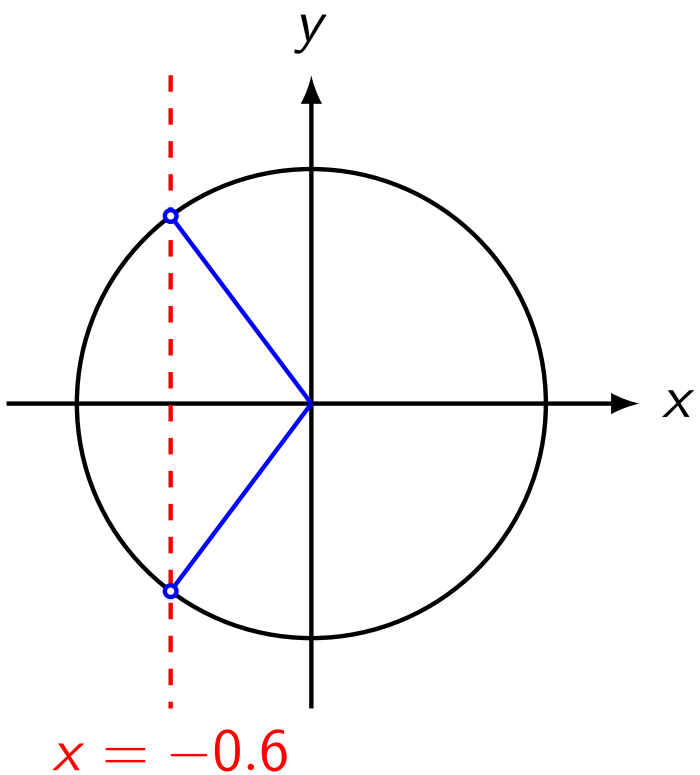
$$\cos(\alpha) = -0.6$$

Aufgabe 9



$$\cos(\alpha) = -0.6$$

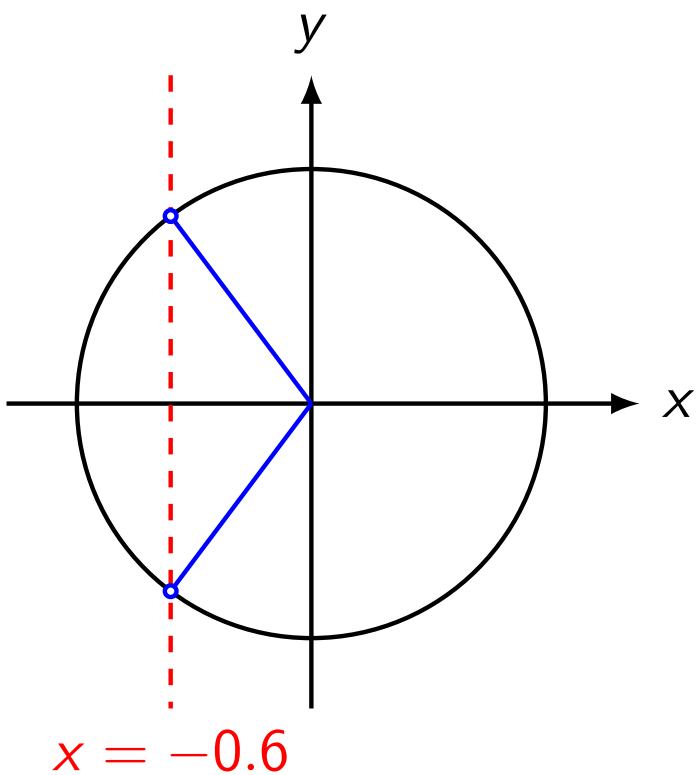
Aufgabe 9



$$\cos(\alpha) = -0.6$$

$$\alpha = \arccos(-0.6) = 126.87^\circ$$

Aufgabe 9

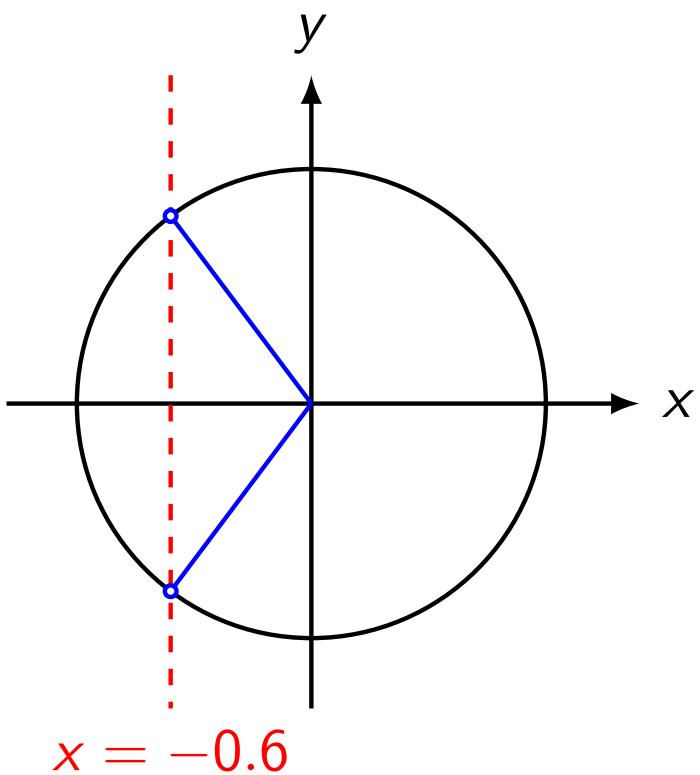


$$\cos(\alpha) = -0.6$$

$$\alpha = \arccos(-0.6) = 126.87^\circ$$

$$\alpha_1 = 126.87^\circ$$

Aufgabe 9



$$\cos(\alpha) = -0.6$$

$$\alpha = \arccos(-0.6) = 126.87^\circ$$

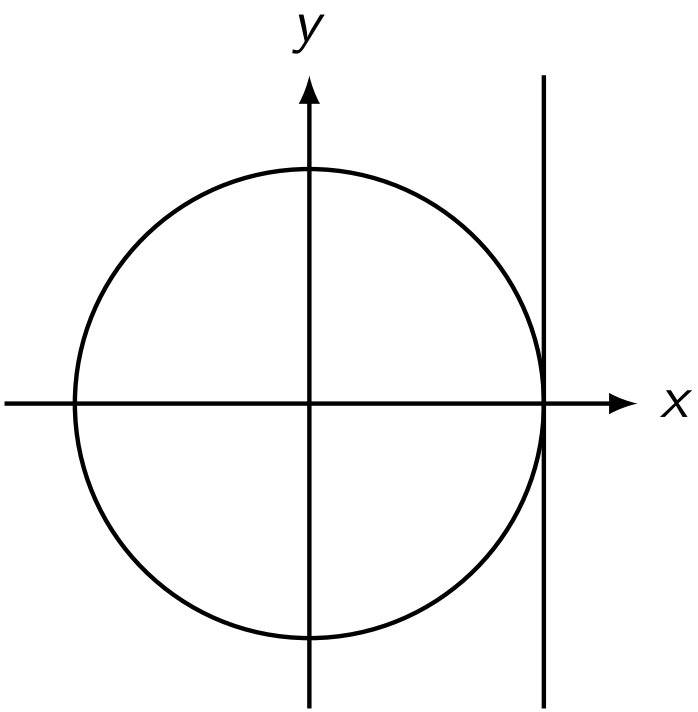
$$\alpha_1 = 126.87^\circ$$

$$\alpha_2 = 360^\circ - \alpha = 233.13^\circ$$

Aufgabe 10

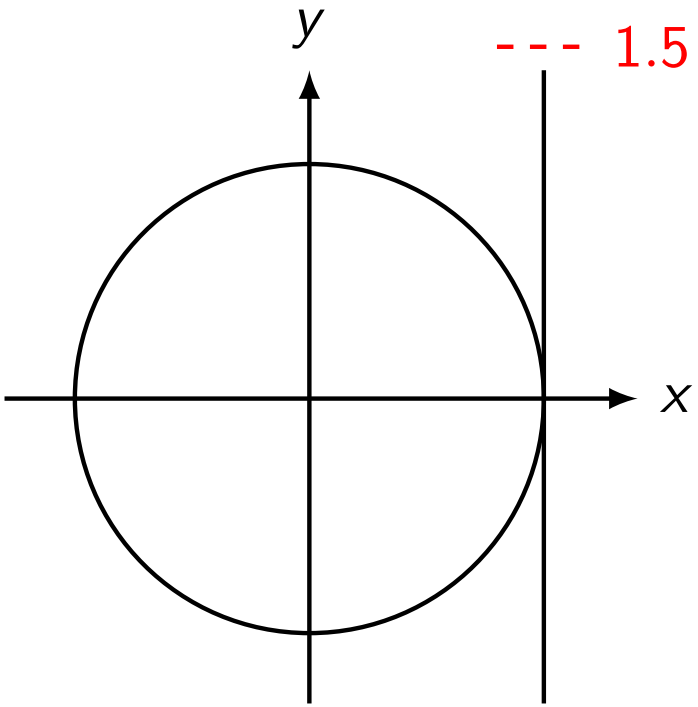
$$\tan(\alpha) = 1.5$$

Aufgabe 10



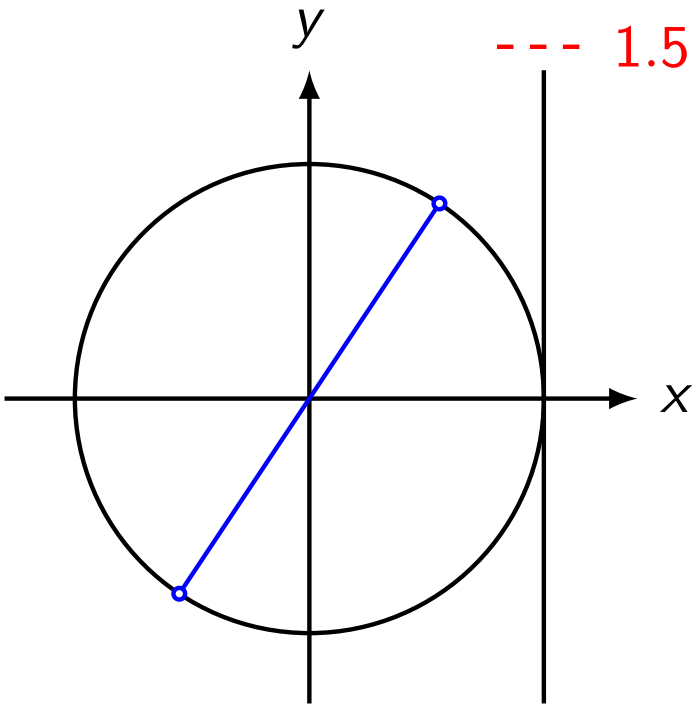
$$\tan(\alpha) = 1.5$$

Aufgabe 10



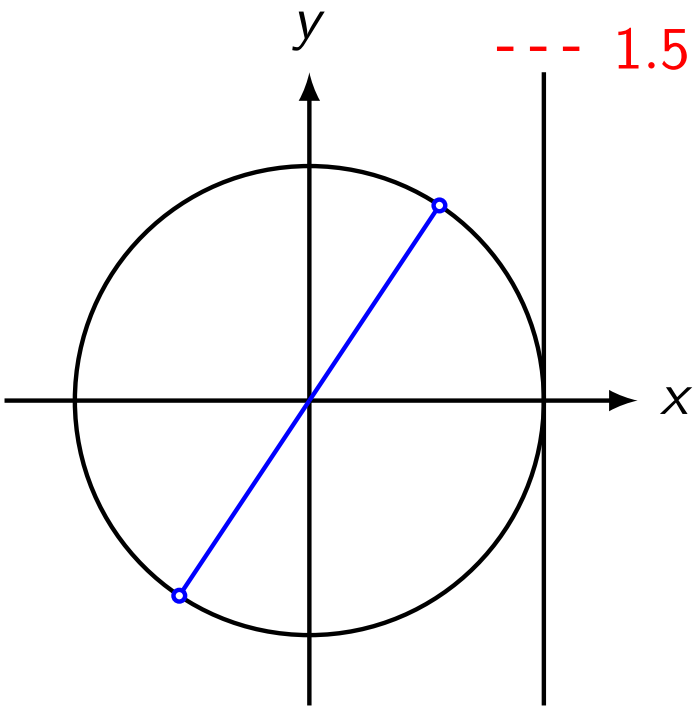
$\tan(\alpha) = 1.5$

Aufgabe 10



$\tan(\alpha) = 1.5$

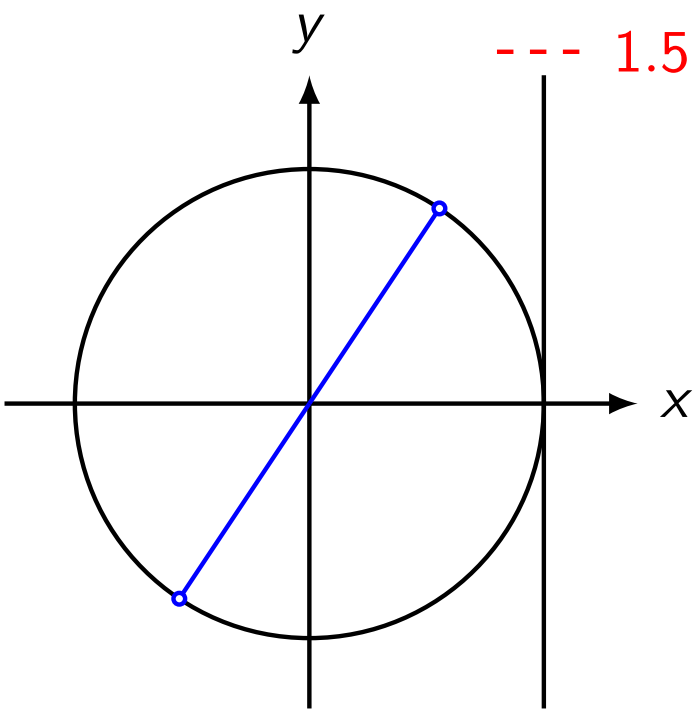
Aufgabe 10



$$\tan(\alpha) = 1.5$$

$$\alpha = \arctan(1.5) = 56.31°$$

Aufgabe 10

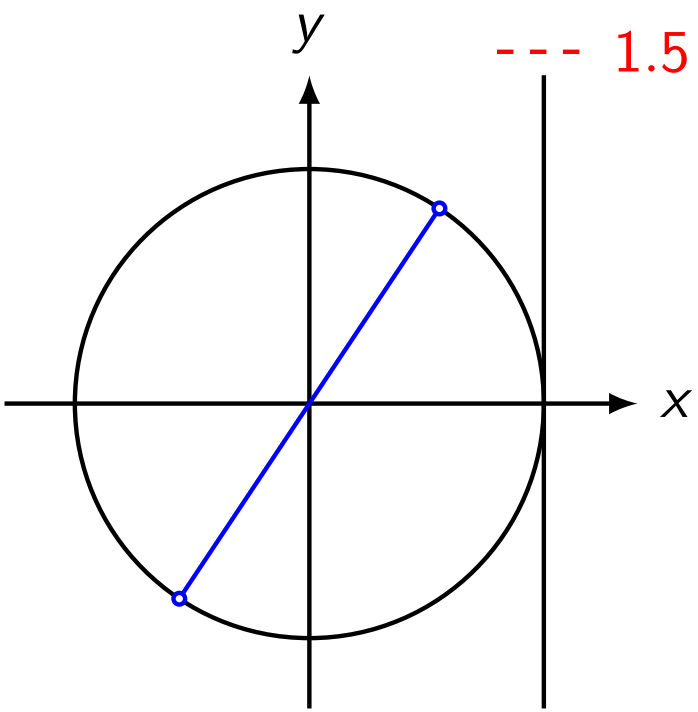


$$\tan(\alpha) = 1.5$$

$$\alpha = \arctan(1.5) = 56.31°$$

$$\alpha_1 = 56.31°$$

Aufgabe 10



$$\tan(\alpha) = 1.5$$

$$\alpha = \arctan(1.5) = 56.31°$$

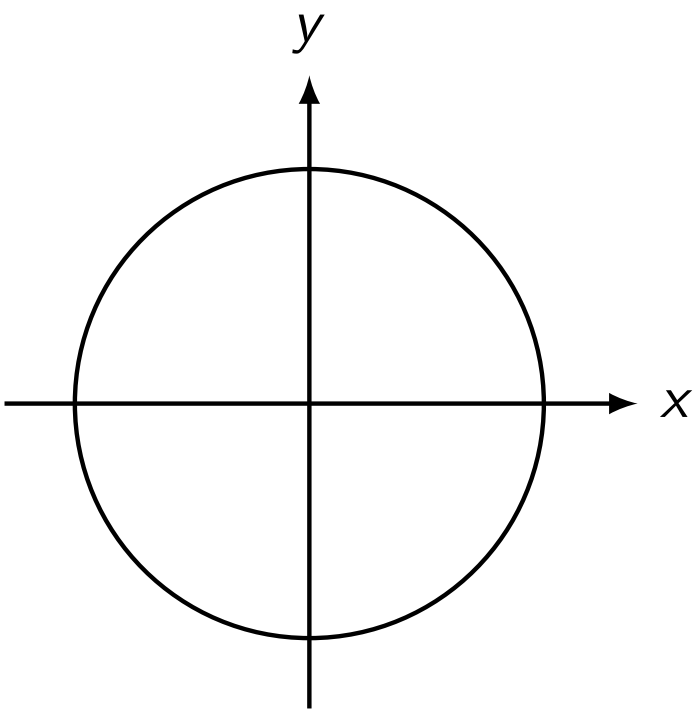
$$\alpha_1 = 56.31°$$

$$\alpha_2 = \alpha + 180° = 236.31°$$

Aufgabe 11

$$\sin(\alpha) = -0.5$$

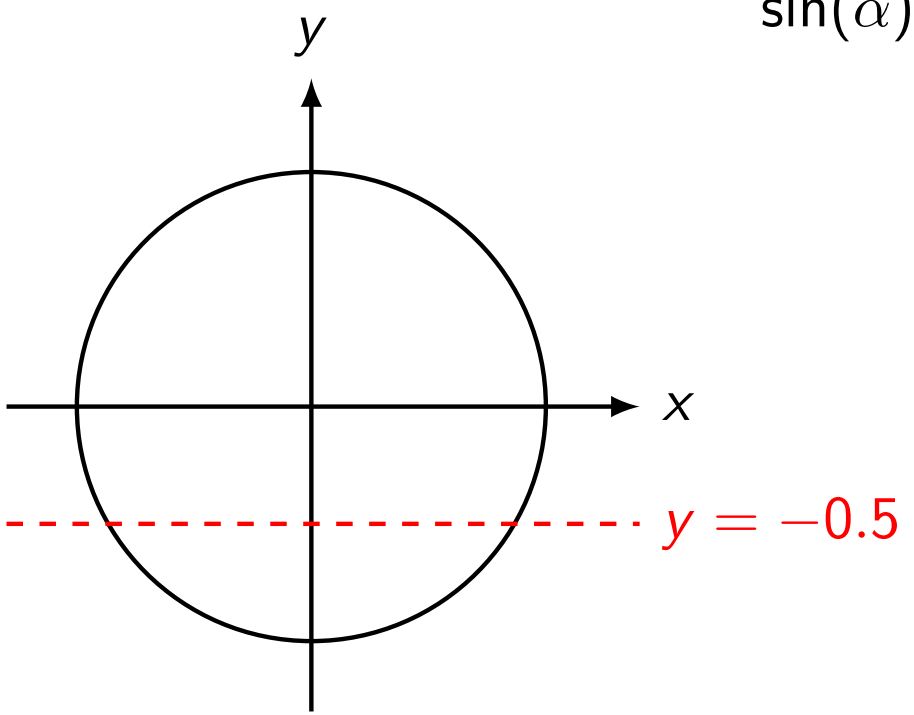
Aufgabe 11



$$\sin(\alpha) = -0.5$$

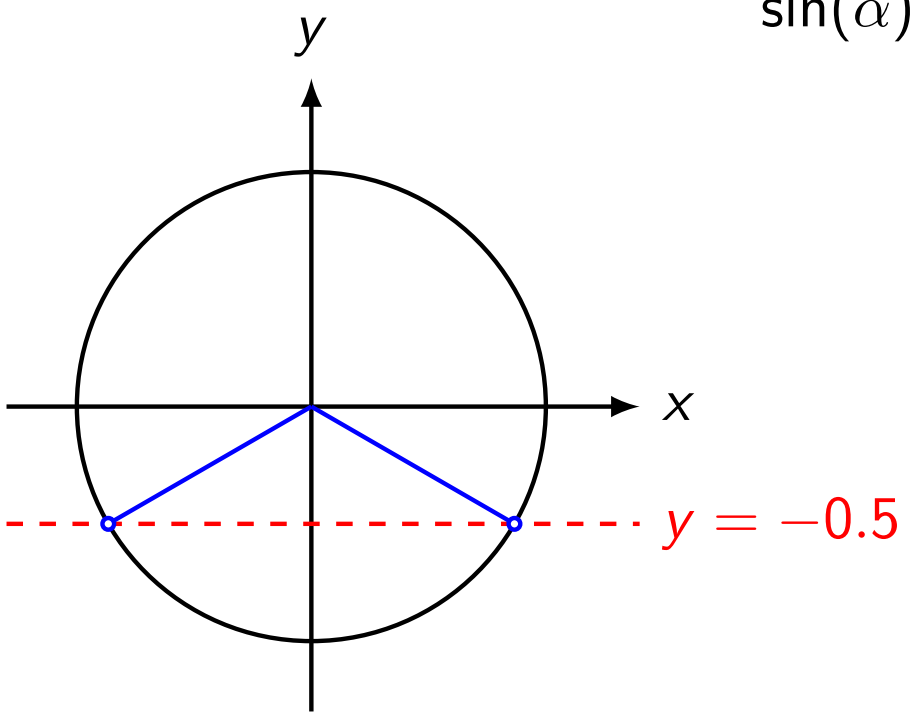
Aufgabe 11

$$\sin(\alpha) = -0.5$$

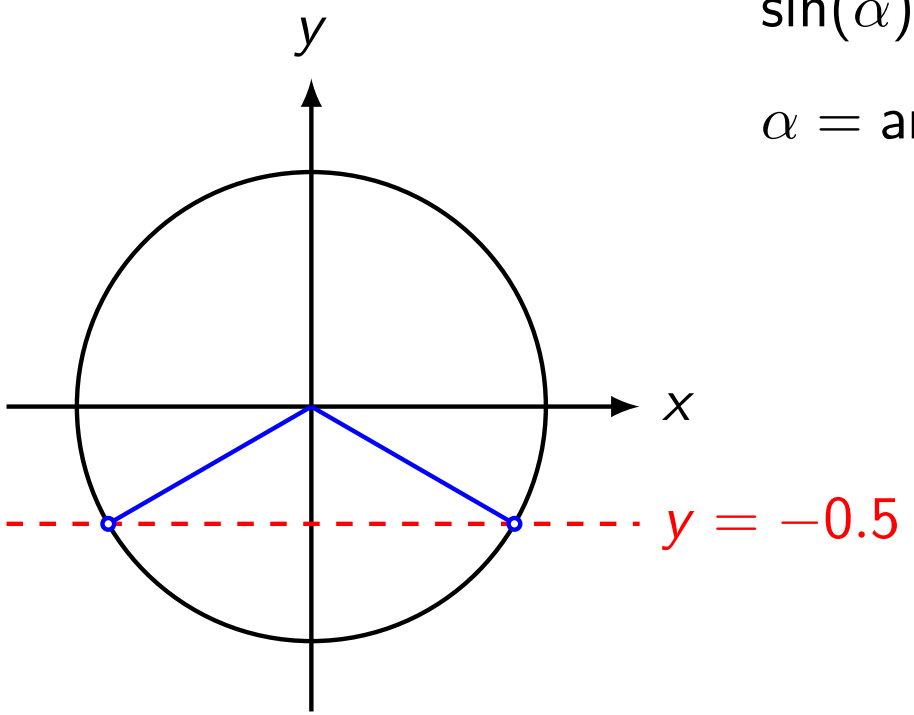


Aufgabe 11

$$\sin(\alpha) = -0.5$$



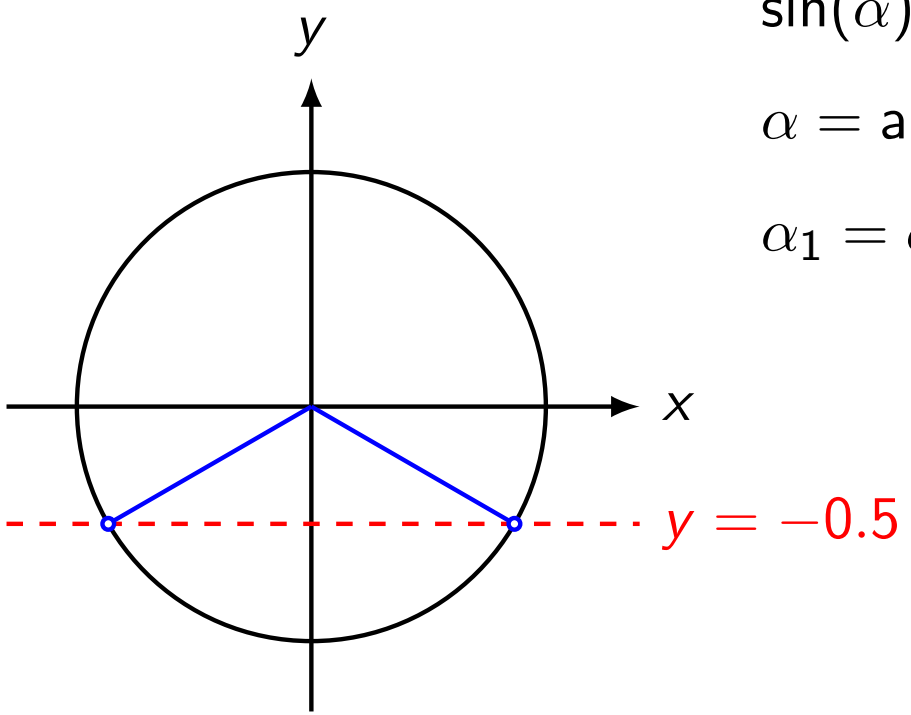
Aufgabe 11



$$\sin(\alpha) = -0.5$$

$$\alpha = \arcsin(-0.5) = -30°$$

Aufgabe 11

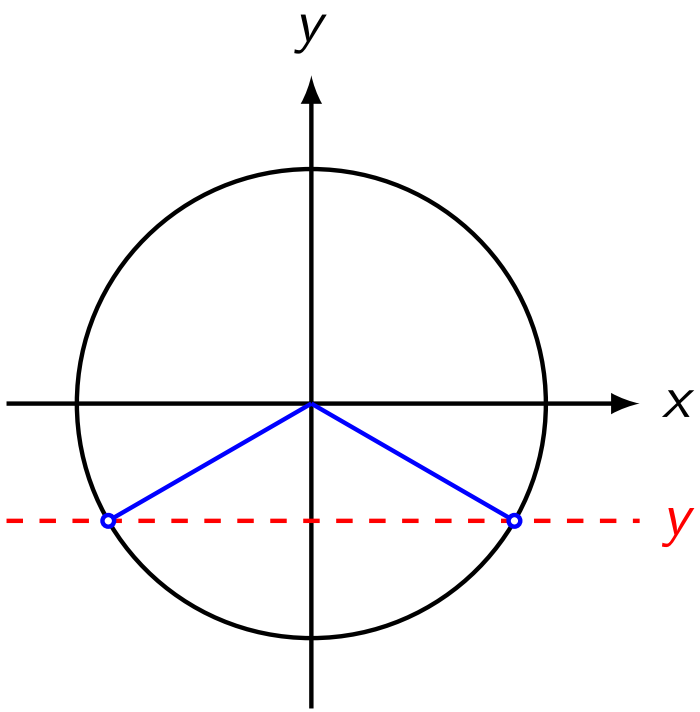


$$\sin(\alpha) = -0.5$$

$$\alpha = \arcsin(-0.5) = -30^\circ$$

$$\alpha_1 = \alpha + 360^\circ = 330^\circ$$

Aufgabe 11



$$\sin(\alpha) = -0.5$$

$$\alpha = \arcsin(-0.5) = -30^\circ$$

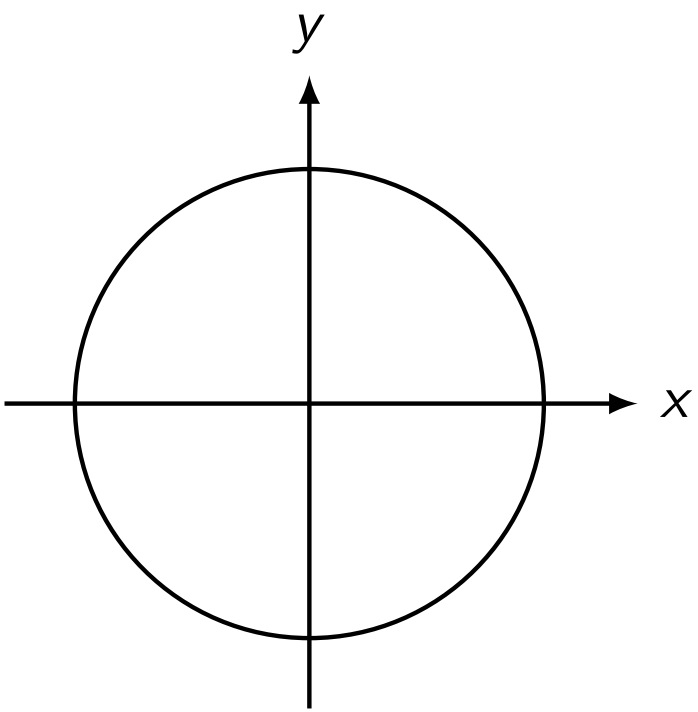
$$\alpha_1 = \alpha + 360^\circ = 330^\circ$$

$$\alpha_2 = 180^\circ - \alpha = 210^\circ$$

Aufgabe 12

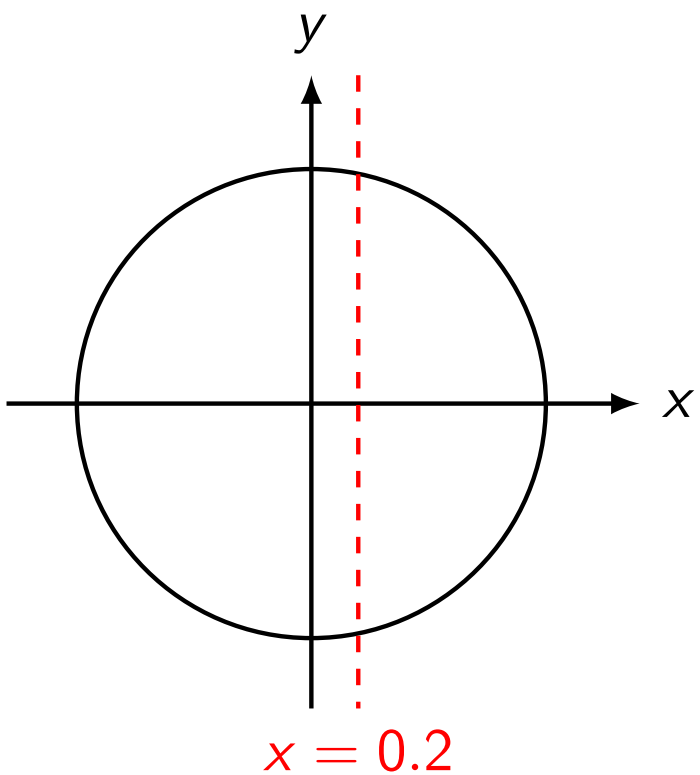
$$\cos(\alpha) = 0.2$$

Aufgabe 12



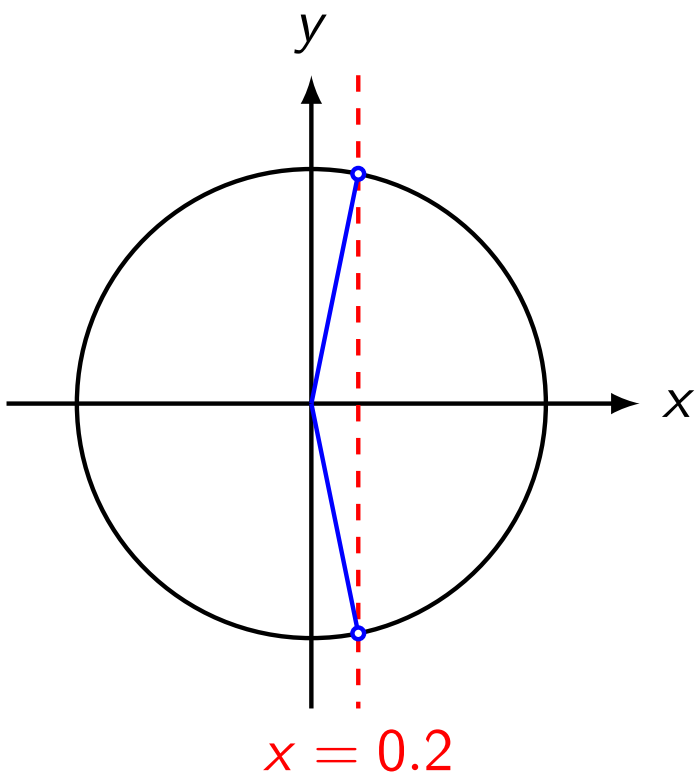
$$\cos(\alpha) = 0.2$$

Aufgabe 12



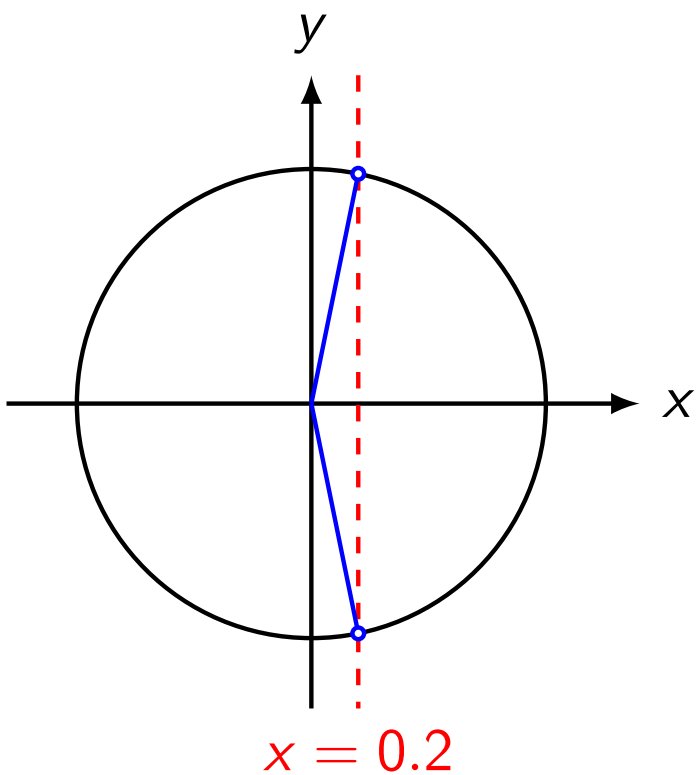
$$\cos(\alpha) = 0.2$$

Aufgabe 12



$$\cos(\alpha) = 0.2$$

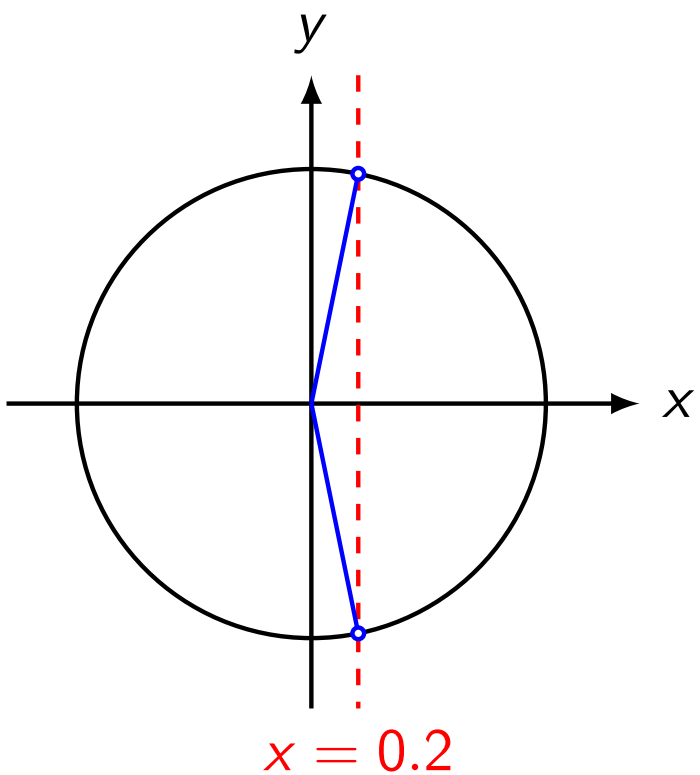
Aufgabe 12



$$\cos(\alpha) = 0.2$$

$$\alpha = \arccos(0.2) = 78.46^\circ$$

Aufgabe 12

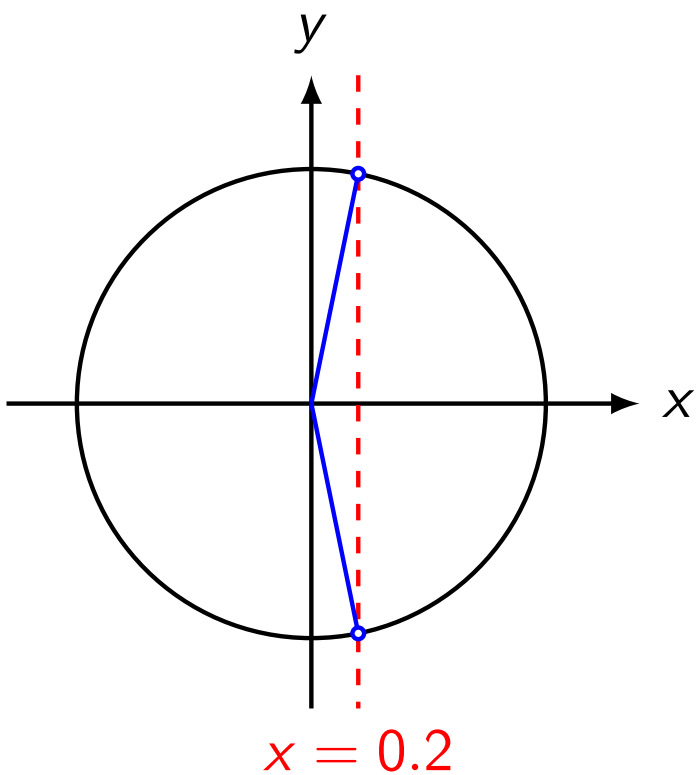


$$\cos(\alpha) = 0.2$$

$$\alpha = \arccos(0.2) = 78.46°$$

$$\alpha_1 = 78.46°$$

Aufgabe 12



$$\cos(\alpha) = 0.2$$

$$\alpha = \arccos(0.2) = 78.46^\circ$$

$$\alpha_1 = 78.46^\circ$$

$$\alpha_2 = 360^\circ - \alpha = 281.54^\circ$$