Task. Express $\sin(-36°)$ in terms of
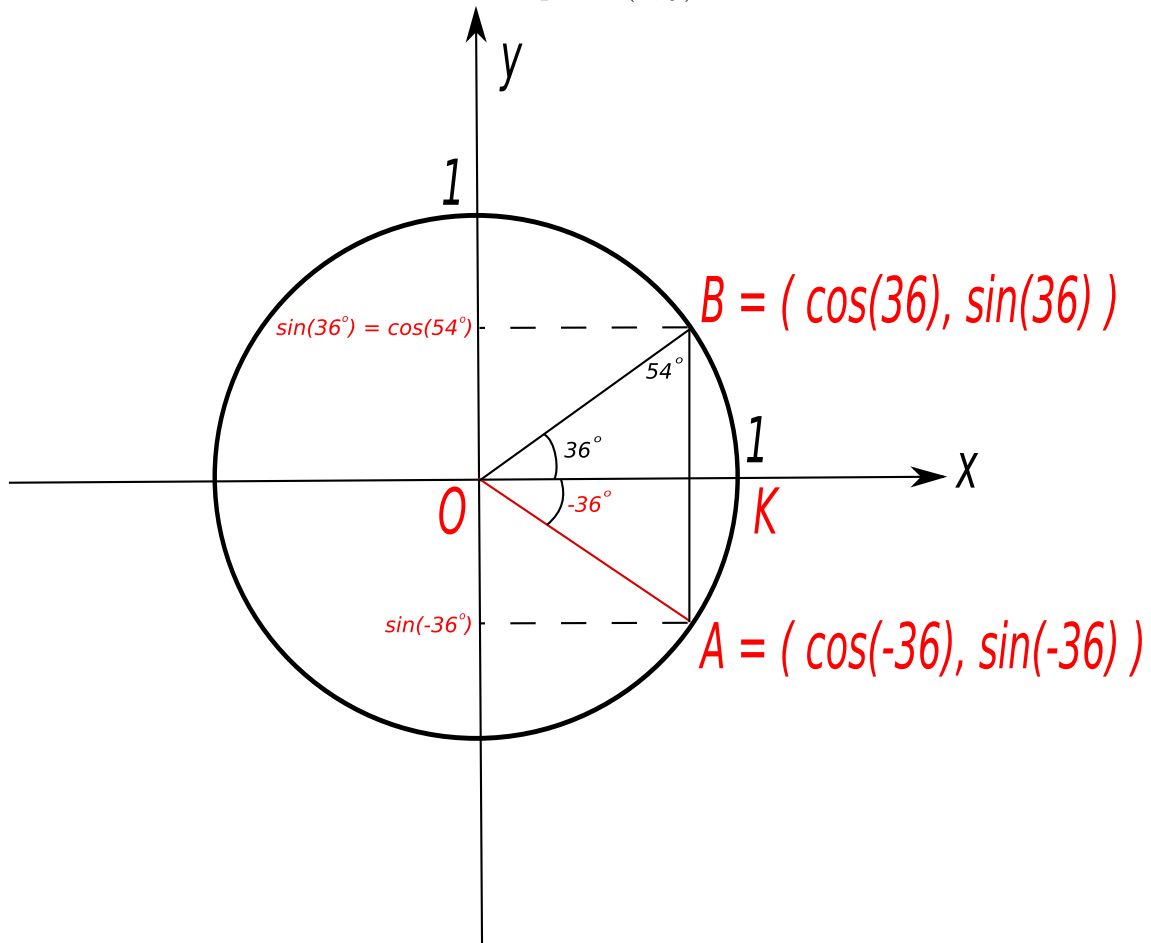a) the sin of an acute angle and
b) the cos of an acute angle.
Solution. Consider the unit circle in the plane (x, y):

Let A be the point on this circle in the lower half-plane such that $\angle AOK = 36°$. Then $(\cos(-36), \sin(-36))$ are, by definition, the coordinates of A. Hence

$$\sin(-36) = -AK.$$

We should express the second coordinate of A via sin and cos of acute angle.

Consider the symmetric point B on the circle, laying in the upper half-plane and such that $\angle BOK = 36°$. Then $B = (\cos(36°), \sin(36°))$, and in particular, $BK = \sin(36°)$. It is also evident, that the triangles OBK and OAK are equal, so $BK = AK$, and therefore

$$\sin(-36°) = -AK = -BK = -\sin(36°).$$

Furhtermore,

$$\sin 36° = \sin \angle BOK = \frac{BK}{OB} = \cos KBO = \cos 54°.$$

Answer. $\sin(-36°) = -\sin 36° = \cos 54°.$