

$$d) \operatorname{ctg} a = -2 \quad \text{i} \quad 90^\circ \leq a \leq 180^\circ \Rightarrow a \in 2n\pi. \quad (4)$$

$$\operatorname{tg} a = \frac{1}{\operatorname{ctg} a} = -\frac{1}{2}$$

$$\begin{aligned} \sin a &\geq 0 \\ \cos a &\leq 0 \end{aligned}$$

Tenim que $\sin^2 a + \cos^2 a = 1$

$$\text{i} \quad \operatorname{tg} a = \frac{\sin a}{\cos a} \iff \sin a = \cos a \operatorname{tg} a$$

$\begin{matrix} \text{"} \\ -\frac{1}{2} \end{matrix}$

Per tant,

$$\left. \begin{aligned} \sin^2 a + \cos^2 a &= 1 \\ \sin a &= -\frac{1}{2} \cos a \end{aligned} \right\} \left. \begin{aligned} \sin^2 a + \cos^2 a &= 1 \\ \cos a &= -2 \sin a \end{aligned} \right\}$$

Substituïm la 2a equació en la 1a:

$$\sin^2 a + (-2 \sin a)^2 = 1$$

$$\sin^2 a + 4 \sin^2 a = 1$$

$$5 \sin^2 a = 1$$

$$\sin^2 a = \frac{1}{5}$$

$$\sin a = \sqrt{\frac{1}{5}} = \frac{1}{\sqrt{5}}$$

\uparrow
 $\sin a \geq 0$

Substituïm en la 2a equació:

$$\cos a = -2 \cdot \frac{1}{\sqrt{5}} = -\frac{2}{\sqrt{5}}$$

$$\operatorname{cosec} a = \frac{1}{\sin a} = \sqrt{5}$$

$$\operatorname{sec} a = \frac{1}{\cos a} = \frac{\sqrt{5}}{2}$$

$$(6) \quad a) \quad |\sin \alpha| = |\cos \alpha| \Rightarrow \begin{cases} \sin \alpha = \cos \alpha & (1) \\ \text{ó} \\ \sin \alpha = -\cos \alpha & (2) \end{cases}$$