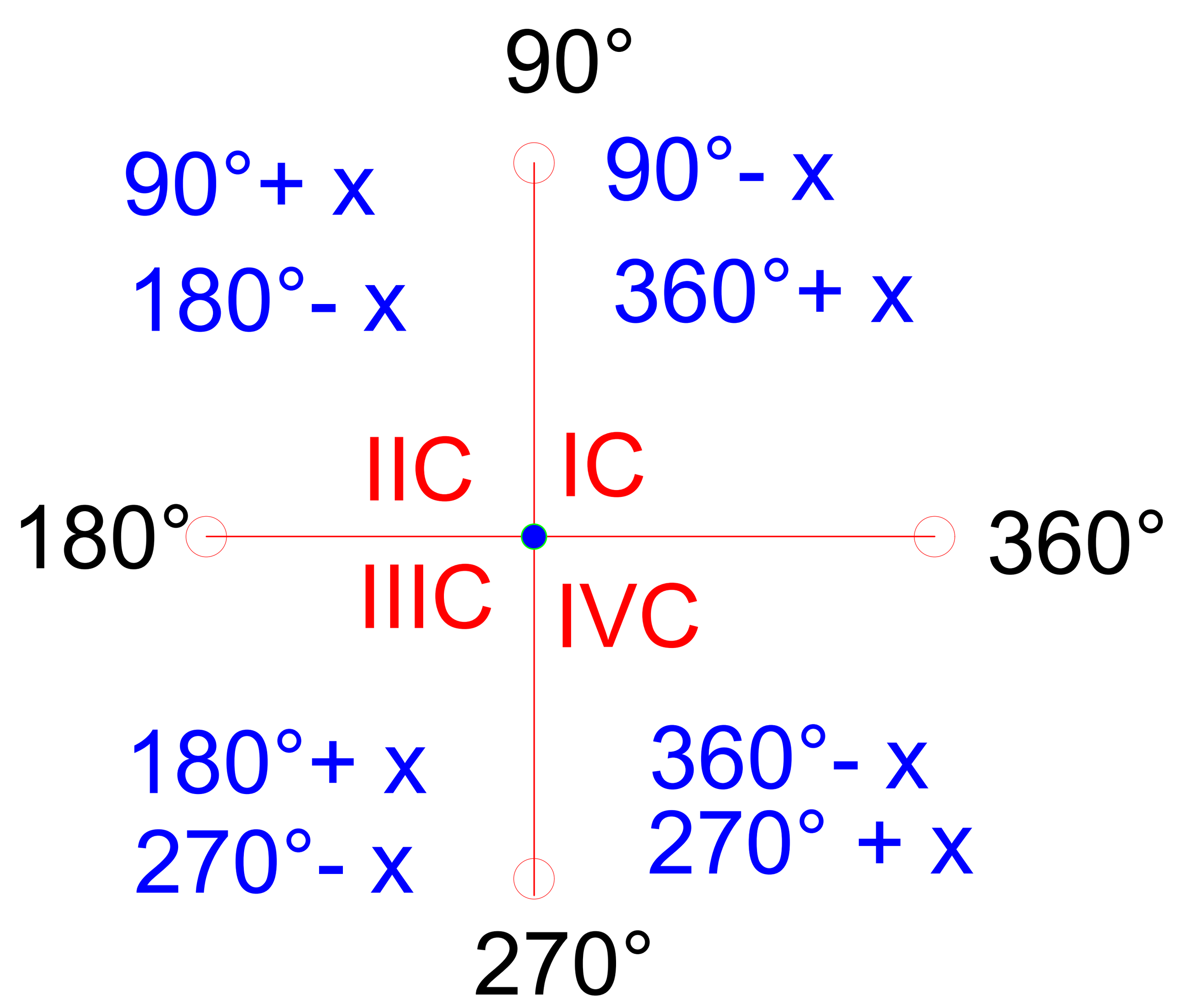
REDUCCIÓN AL PRIMER CUADRANTE

CASO I: Para ángulos positivos menores a una vuelta



$X<90°$

$RT(180° \pm x) = \pm RT(x)$
$RT(360° \pm x) = \pm RT(x)$
$RT(90° \pm x) = \pm Co\text{-}RT(x)$
$RT(270° \pm x) = \pm Co\text{-}RT(x)$

$$\boxed{RT(\underbrace{180° \pm x}_{\in II\ Ó\ IIIC}) = \pm RT(x)}$$

$$Sen(\underbrace{180° - 30°}_{IIC}) = +Sen(30°) = \frac{1}{2}$$

$$Sen(\underbrace{180° + 30°}_{IIIC}) = -Sen(30°) = -\frac{1}{2}$$

$$Cos(\underbrace{180° - 30°}_{IIC}) = -Cos(30°) = -\frac{\sqrt{3}}{2}$$

$$Cos(180° + 30°) = -Cos(30°) = -\frac{\sqrt{3}}{2}$$

$$Tan(\underbrace{180° - 45°}_{IIC}) = -Tan(45°) = -1$$

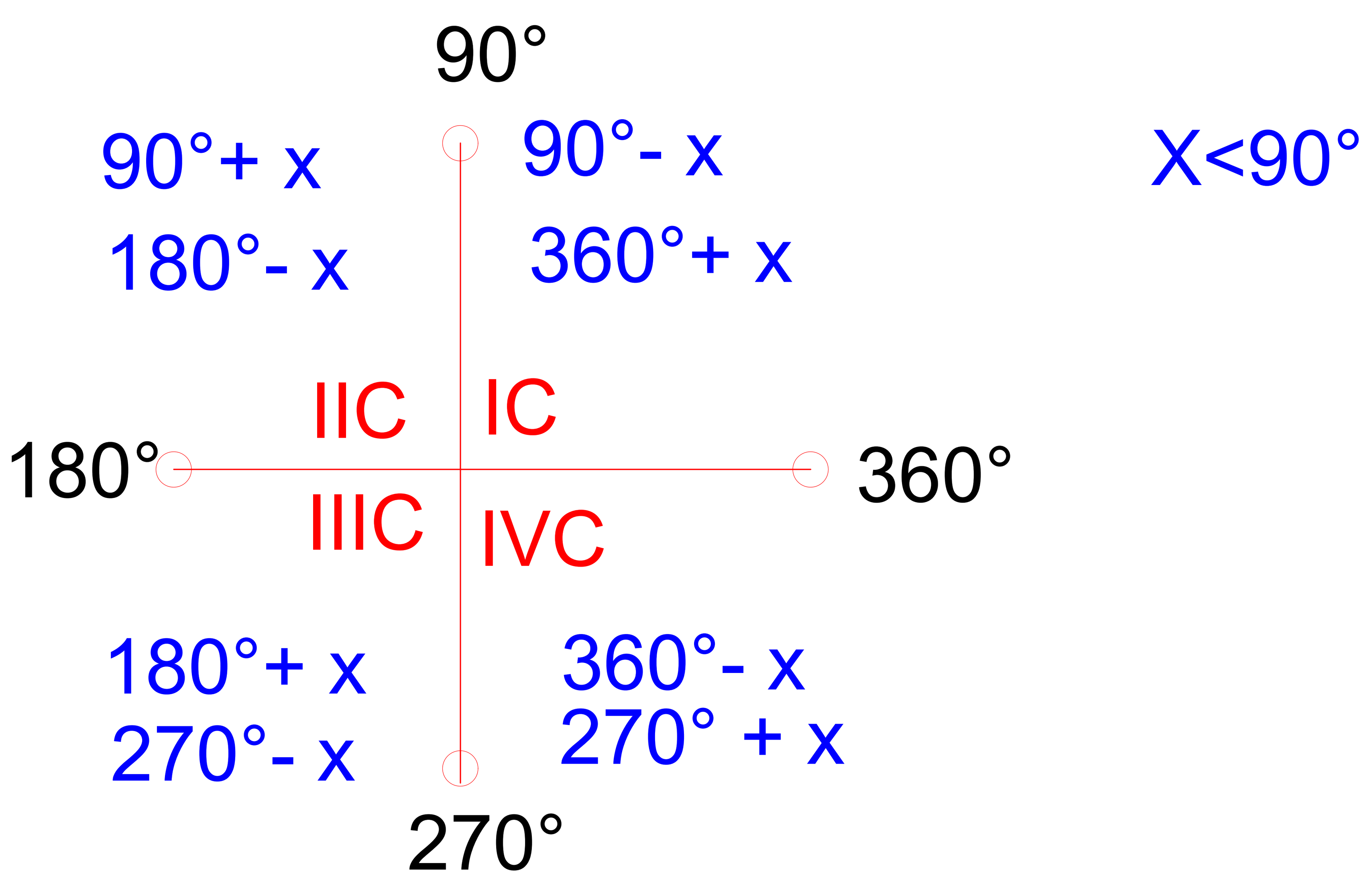
$$Tan(\underbrace{180° + 45°}_{IIIC}) = +Tan(45°) = +1$$

$$Sec(\underbrace{240°}_{\in IIIC}) = Sec(180°+60°) = -Sec60° = -2$$

$$Csc(\underbrace{225°}_{\in IIIC}) = Csc(180°+45°) = -Csc45° = -\sqrt{2}$$

REDUCCIÓN AL PRIMER CUADRANTE

CASO I: Para ángulos positivos menores a una vuelta



RT(180° ± x)= ± RT(x)
RT(360° ± x)= ±RT(x)
RT(90°± x)=± Co-RT(x)
RT(270°± x)=±Co-RT(x)

$$\boxed{RT(\underbrace{180°\pm x}_{\in II\ Ó\ IIIC}) = \pm RT(x)}$$

$$Sen(\underbrace{180°-30°}_{IIC}) = +Sen(30°) = \frac{1}{2}$$

$$Sen(\underbrace{180°+30°}_{IIIC}) = -Sen(30°) = -\frac{1}{2}$$

$$Cos(\underbrace{180°-30°}_{IIC}) = -Cos(30°) = -\frac{\sqrt{3}}{2}$$

$$Cos(180°+30°) = -Cos(30°) = -\frac{\sqrt{3}}{2}$$

$$Tan(\underbrace{180°-45°}_{IIC}) = -Tan(45°) = -1$$

$$Tan(\underbrace{180°+45°}_{IIIC}) = +Tan(45°) = +1$$

$$Sec(\underbrace{240°}_{\in IIIC})=Sec(180°+60°)=-Sec60°=-2$$

$$Csc(\underbrace{225°}_{\in IIIC})=Csc(180°+45°)=-Csc45°=-\sqrt{2}$$

$$\boxed{RT(360°\underbrace{\pm x}_{\in \text{ IVC Ó IC}}) = \pm RT(x)}$$

$Sen(360° - 30°) = - Sen(30°) = -\frac{1}{2}$

IVC

$Sen(360° + 30°) = + Sen(30°) = +\frac{1}{2}$

IC

$Cos(360° - 30°) = + Cos(30°) = \frac{\sqrt{3}}{2}$

$Cos(360° + 30°) = + Cos(30°) = +\frac{\sqrt{3}}{2}$

$Tan(360° - 45°) = - Tan(45°) = - 1$

$Tan(360° + 45°) = + Tan(45°) = +1$

$Sec(\underbrace{300°}_{\in IVC})=Sec(360°-60°)=+Sec60°=+2$

$Csc(\underbrace{390°}_{\in IC})=Csc(360°+30°)=+Csc30°=+2$

CASO II: Para ángulos positivos mayores a una vuelta

Los ángulos positivos mayores a una vuelta, tienen la forma $360°k + x$, donde k es un número entero y x es un ángulo agudo menor a una vuelta. Luego se cumple que:

$$\boxed{RT(360°k+x) = RT(x)}$$

$$\boxed{RT(2K\pi+x) = RT(x)} \quad k \in Z$$

Sea: $\theta > 360°$ Entonces:

$RT(\theta) = RT(Residuo(\frac{?}{360°}))$

$Sen5050° = Sen10°$

5050°	360°
5040°	14
10°	

NOTA: Si el residuo es mayor a 90° continuar el caso I

Ó así:

$Sen(360°x14+10°)= Sen10°$

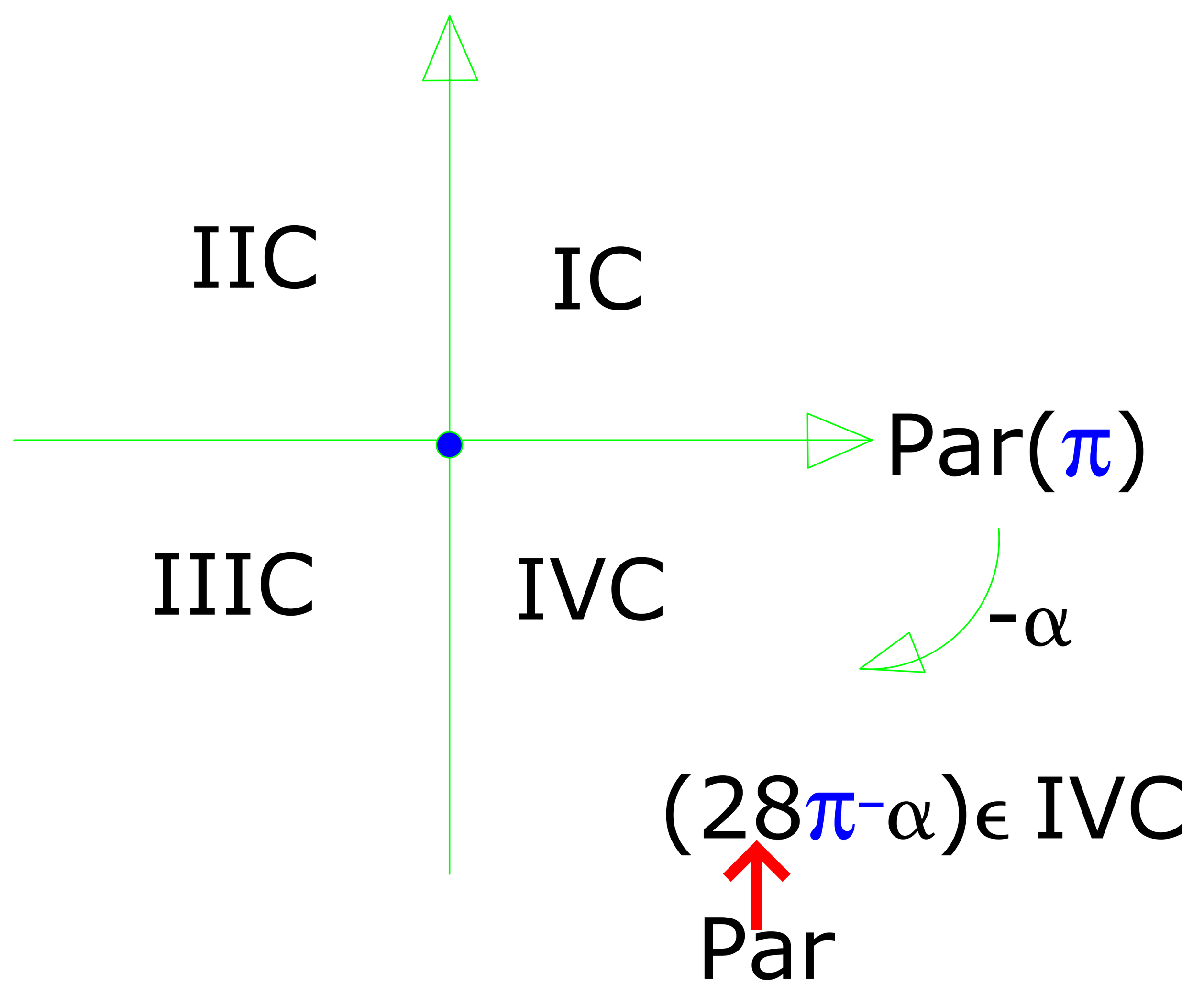
CASO III: Para ángulos negativos

$\mathrm{Sen}(-x) = -\mathrm{Sen}x$
$\mathrm{Cos}(-x) = +\mathrm{Cos}x$
$\mathrm{Tan}(-x) = -\mathrm{Tan}x$
$\mathrm{Ctg}(-x) = -\mathrm{Ctg}x$
$\mathrm{Sec}(-x) = +\mathrm{Sec}x$
$\mathrm{Csc}(-x) = -\mathrm{Csc}x$

Cuando los ángulos están escritos en radianes

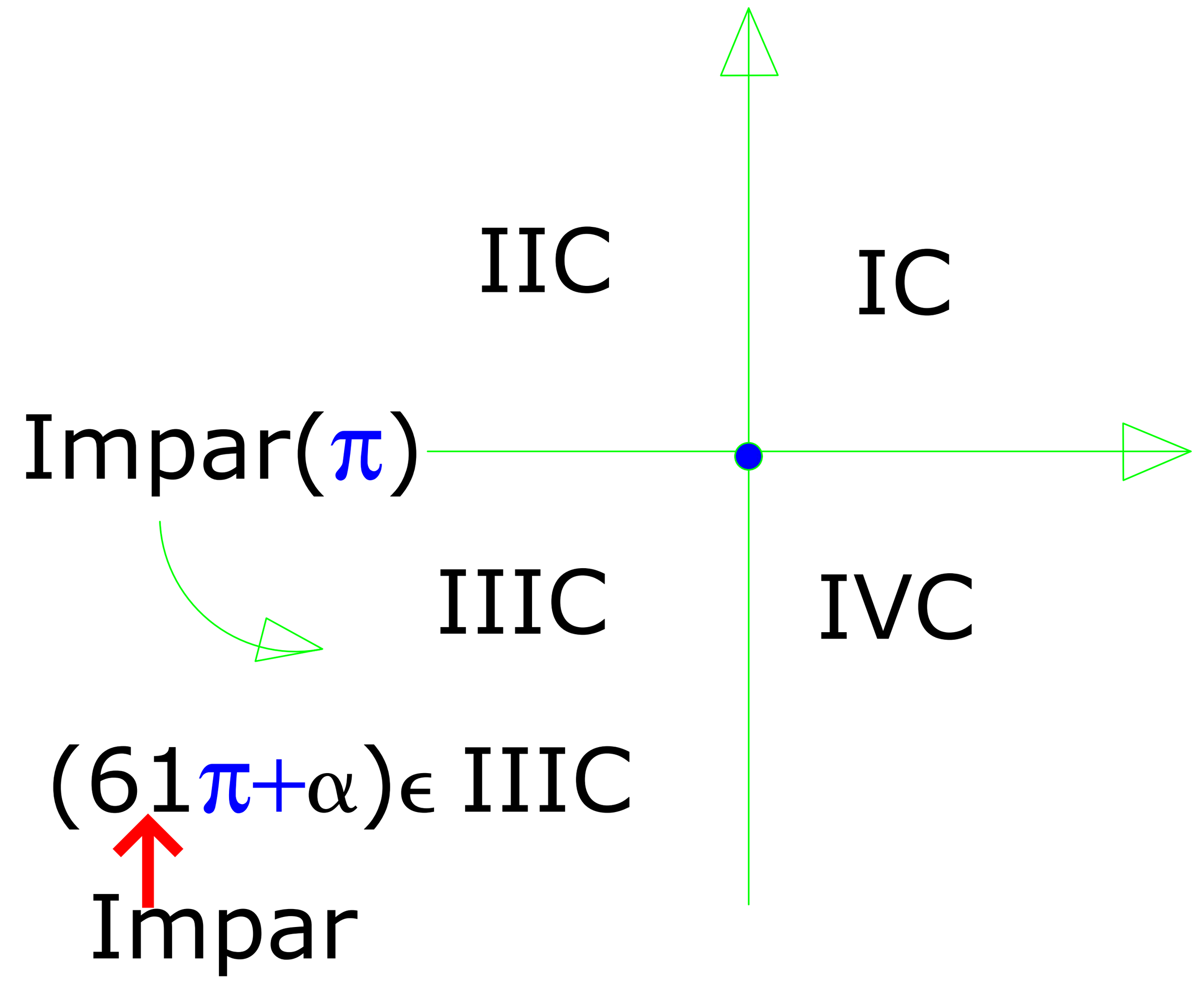
Reduzca $\mathrm{Sen}(28\pi-\alpha)= \mathrm{Sen}(-\alpha) = -\mathrm{Sen}\alpha$

$$\begin{array}{l|l} 28\pi-\alpha & 2\pi \\ \hline 28\pi & 14 \\ \hline \boxed{-\alpha} & \end{array}$$



Reduzca $\mathrm{Tan}(61\pi+\alpha)= \mathrm{Tan}(\alpha)$

$$\begin{array}{l|l} 61\pi+\alpha & 2\pi \\ \hline 60\pi & 30 \\ \hline \boxed{+\alpha} & \end{array}$$



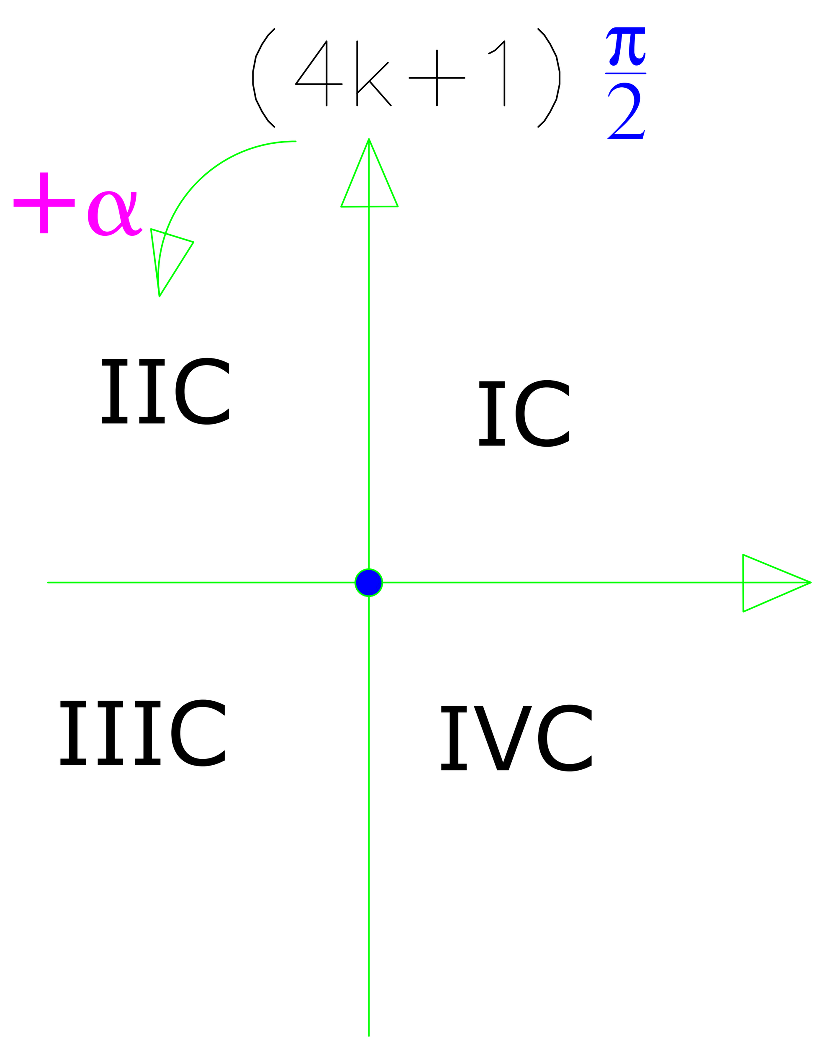
$(28\pi-\alpha)\in$ IVC Par	$(61\pi+\alpha)\in$ IIIC Impar
$(\frac{25\pi}{2}+\alpha)\in$ IIC	

Reduzca $\operatorname{Sen}\left(\frac{25\pi}{2}+\alpha\right)= \operatorname{Cos}(\alpha)$

$$\frac{25\pi}{2}+\alpha \;\Big|\; \frac{4\pi}{2} \qquad \frac{25}{4} \qquad \boxed{\alpha}$$

$$25 \;\underline{|\;\;4\;}\qquad 24 \quad 6 \qquad \boxed{1}$$

$\boxed{1}$ → Indica que el ángulo está en la misma posición de $\frac{\pi}{2}$



Reduzca $\operatorname{Tan}\left(\frac{35\pi}{2}+\alpha\right)= -\operatorname{Ctg}(\alpha)$

$$\frac{35\pi}{2}+\alpha \;\Big|\; \frac{4\pi}{2} \qquad \frac{35}{4} \qquad \boxed{\alpha}$$

$$35 \;\underline{|\;\;4\;}\qquad 32 \quad 8 \qquad \boxed{3}$$

$\boxed{3}$ → Indica que el ángulo está en la misma posición de $\frac{3\pi}{2}$

$$35 \;\underline{|\;\;4\;}\qquad 36 \quad 9 \qquad \boxed{-1}$$

$\boxed{-1}$ → Indica que el ángulo está en la misma posición de $\frac{3\pi}{2}$