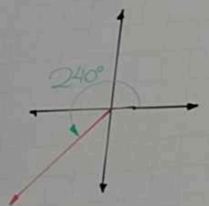
# TRIGONOMETRÍA

## Reducción al Primer Cuadrante

I. Aproximando a 180° o 360°

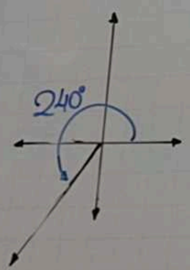
* Reducir: $\text{SEN } 240°$




$-\text{SEN } 60°$

Aproximando a 90° o 270°

* Reducir: $\text{SEN } 240°$




$-\text{COS } 30°$

## Signo de las R.T

IC: TODAS

IIC: SEN, CSC

IIIC: TAN, COT

IVC: COS, SEC

90°, 0° 360°, 180°, 270°

04)

I. $\underset{(-)}{\text{SEN } 200°} \cdot \underset{(+)}{\text{TAN } 240°}$

$(-)$

II. $\underset{(-)}{\text{COS } 120°} \cdot \underset{(-)}{\text{TAN } 100°}$

$(+)$

III. $\underset{(+)}{\text{SEN } 150°} \cdot \underset{(+)}{\text{COS } 340°}$

$(+)$

## Ángulos Cuadrantales

| | (+) 0° | (+) 90° | (–) 180° | (–) 270° | (+) 360° |
|---|---|---|---|---|---|
| SEN | 0 | 1 | 0 | -1 | 0 |
| COS | 1 | 0 | -1 | 0 | 1 |
| TAN | 0 | ND | 0 | N | 0 |
| COT | ND | 0 | N | 0 | N |
| SEC | 1 | ND | -1 | N | 1 |
| CSC | ND | 1 | N | -1 | N |

07)

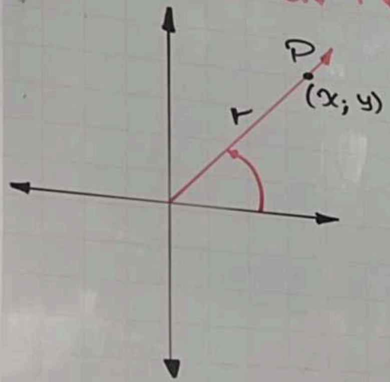
$$E = \frac{(a+b)^2 \cdot \overbrace{\text{SEC } 360°}^{1} + (a-b)^2 \cdot \overbrace{\text{COS } 180°}^{(-1)}}{2ab \cdot \underbrace{\text{CSC } 270°}_{-1}}$$

$$\frac{(a+b)^2 - (a-b)^2}{-2ab} = \frac{4a\cancel{b}}{-2a\cancel{b}} = -2$$

22)

$$M = \frac{4\,\overbrace{\text{SEN } 90°}^{(1)} - 2\,\overbrace{\text{COS } 180°}^{-1} + \overbrace{\text{SEN } 270°}^{-1}}{3\,\underbrace{\text{SEC } 360°}_{(1)} + 5\,\underbrace{\text{SEC } 180°}_{-1} - 2\,\underbrace{\text{CSC } 90°}_{1}} = -\frac{5}{4}$$

# Ángulos en Posición Normal




$\text{SEN}\,\theta = \dfrac{y}{r}$

$\text{COS}\,\theta = \dfrac{x}{r}$

$\text{TAN}\,\theta = \dfrac{y}{x}$

$\text{COT}\,\theta = \dfrac{x}{y}$

$\text{SEC}\,\theta = \dfrac{r}{x}$

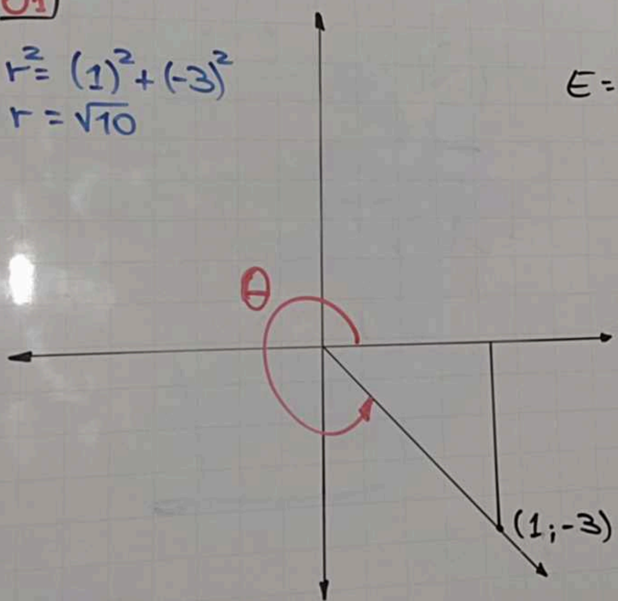
$\text{CSC}\,\theta = \dfrac{r}{y}$

$r^2 = x^2 + y^2$

## 01)

$r^2 = (1)^2 + (-3)^2$

$r = \sqrt{10}$



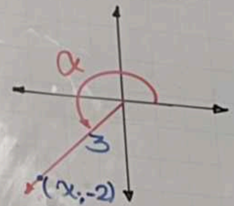

$E = \sqrt{10}.\text{SEN}\,\theta - 12.\text{COT}\,\theta$

$\cancel{\sqrt{10}}.\left(-\dfrac{3}{\cancel{\sqrt{10}}}\right) - \cancel{12}^{4}.\left(-\dfrac{1}{\cancel{3}}\right)$

$E = \underline{1}$

## 03)

$\text{Sen}\,\alpha = -\dfrac{2}{3} = \dfrac{y}{r} \qquad \alpha \in \text{IIIC}$




$(3)^2 = x^2 + (-2)^2$

$-\sqrt{5} = x$

$\sqrt{5}\,(\text{TAN}\,\alpha + \text{SEC}\,\alpha)$

$\cancel{\sqrt{5}}\left(\dfrac{2}{\cancel{\sqrt{5}}} - \dfrac{3}{\cancel{\sqrt{5}}}\right)$

$\underline{-1}$

$25.\text{SEN}\,\alpha + \text{TAN}\,\theta$

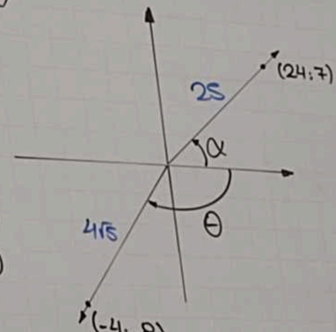
$\cancel{25}.\dfrac{7}{\cancel{25}} + 2$

$\underline{9}$

## 05)

$\underset{(-)}{\text{TAN}\,\beta < 0}$, $\underset{(+)}{\text{COS}\,\beta > 0}$ $\Big\}\ \beta \in \text{IVC}$

## 11)

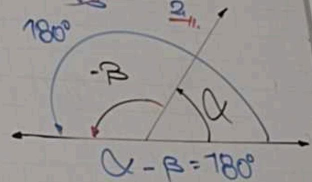



## 14)

$\dfrac{3.\cos\left(\frac{\alpha-\beta}{6}\right) + \text{SEN}\,(\alpha-\beta)}{\sqrt{3}.\,\text{SEN}\left(\frac{\alpha-\beta}{2}\right)}$

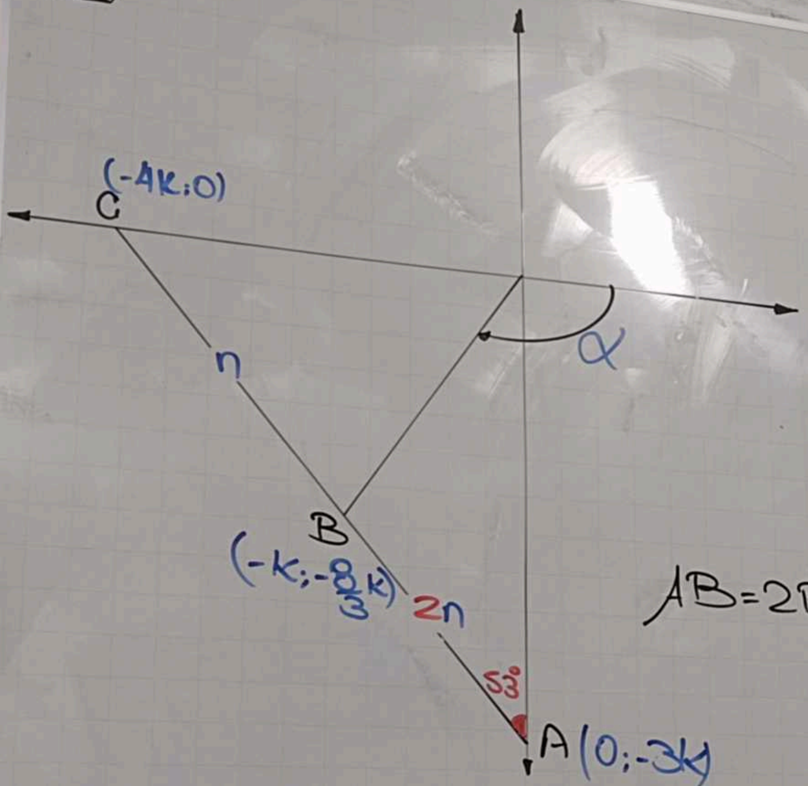
$\dfrac{3.\cos 30^\circ + \underbrace{\text{SEN}\,180^\circ}_{0}}{\sqrt{3}.\,\underbrace{\text{SEN}\,90^\circ}_{(1)}}$

$\dfrac{3.\frac{\cancel{\sqrt{3}}}{2}}{\cancel{\sqrt{3}}} = \underline{\dfrac{3}{2}}$

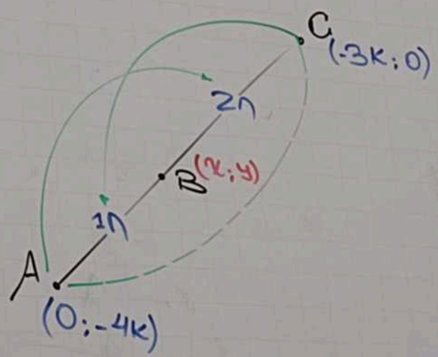



$\alpha - \beta = 180^\circ$

15)



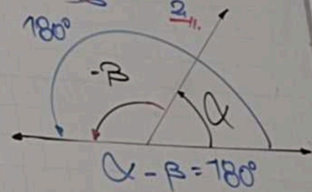

AB=2BC




14) $\dfrac{3\cdot\cos\left(\frac{\alpha-\beta}{6}\right)+\text{SEN}(\alpha-\beta)}{\sqrt{3}\cdot\text{SEN}\left(\frac{\alpha-\beta}{2}\right)}$

$\dfrac{3\cdot\cos 30^\circ+\cancel{\text{SEN }180^\circ}^{\,0}}{\sqrt{3}\cdot\underbrace{\text{SEN }90^\circ}_{(1)}}$

$\dfrac{3\cdot\frac{\sqrt{3}}{2}}{\sqrt{3}}=\dfrac{3}{2}$



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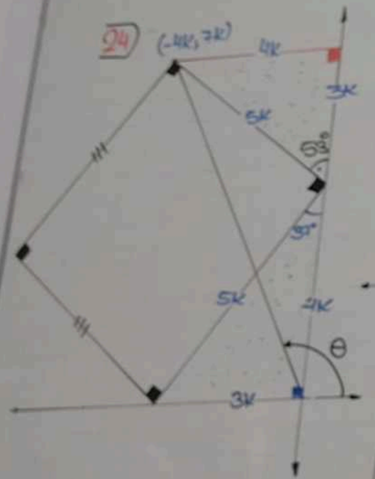


$\cdot \cot\theta = -\frac{4}{7}$

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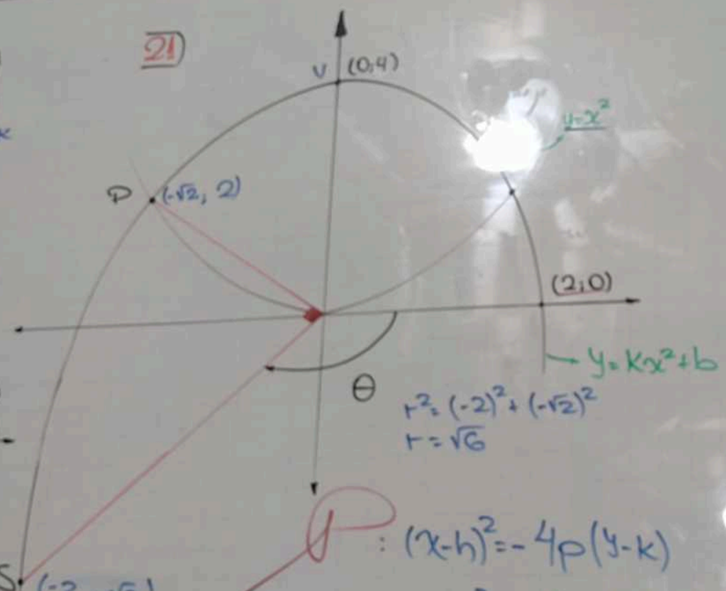



$r^2 = (-2)^2 + (-\sqrt{2})^2$

$r = \sqrt{6}$

P. Int:

$y = -(y-4)$

$y = -y+4$

$y = 2$

P: $(x-h)^2 = -4p(y-k)$

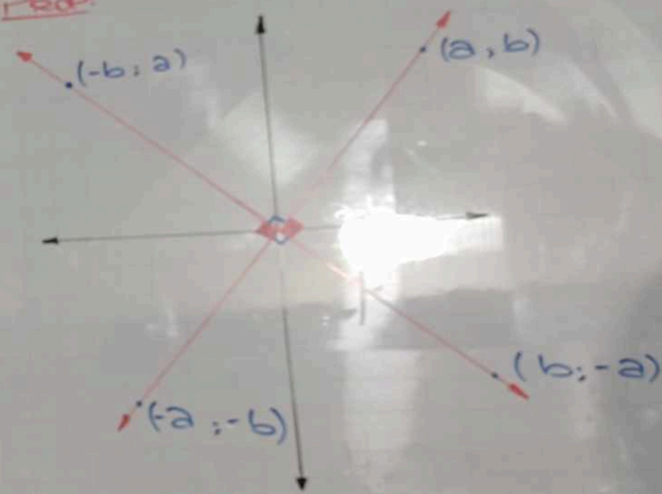
$(x)^2 = -4p(y-4)$

(2;0): $\cancel{4} = -\cancel{4}p(-4)$

$\frac{1}{4} = p$

$x^2 = -(y-4)$

Prop:




$\cdot \cos\theta = -\frac{2}{\sqrt{6}} \cdot \frac{\sqrt{6}}{\sqrt{6}} = -\frac{\sqrt{6}}{3}$