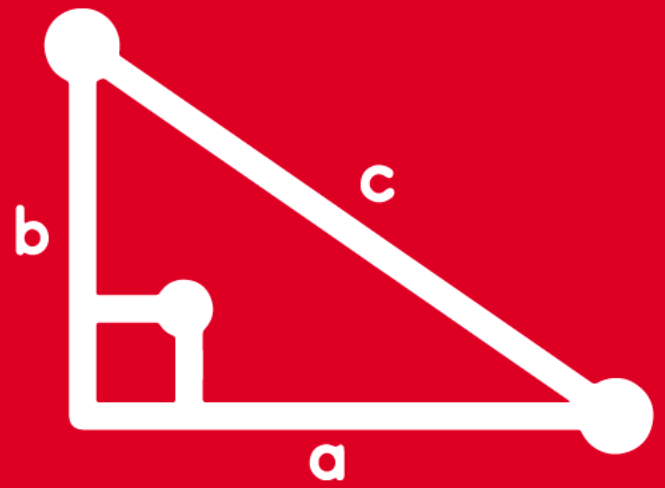
TRIGONOMETRY

Chapter 23



1st
SECONDARY

Razones trigonométricas de ángulos cuadrantales

SACO OLIVEROS

HELICO-MOTIVACIÓN

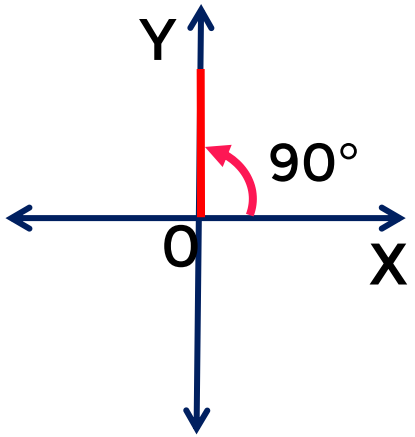
RAZONANDO

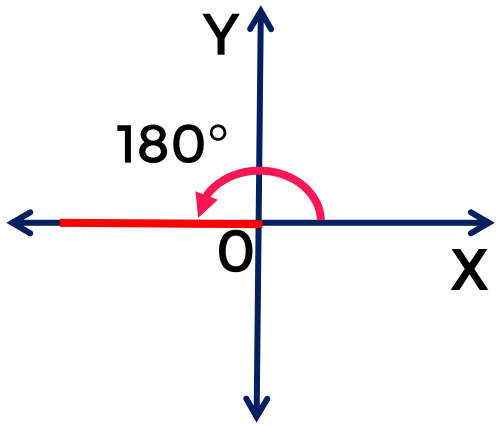
ÁNGULOS CUADRANTALES

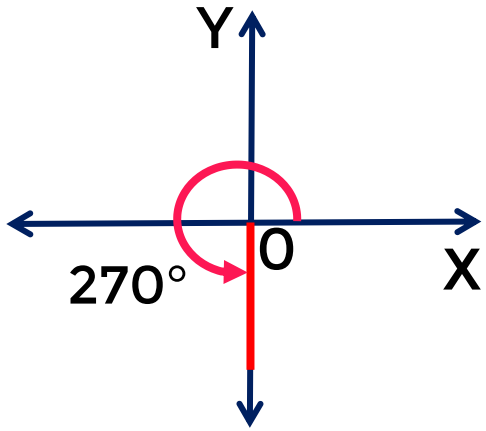
Son aquellos ángulos en posición normal cuyo lado final coincide con algún semieje del plano cartesiano.

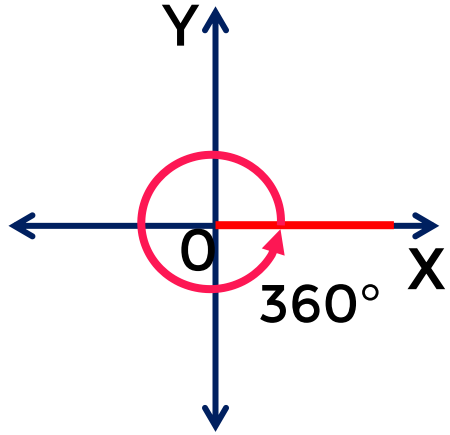
Son de la forma : $\alpha = 90°.n$, $n \in z$

Ejemplos:









RAZONES TRIGONOMÉTRICAS DE ÁNGULOS CUADRANTALES

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

¡Excelente!

N.D : No Determinado

HELICO-PRACTICE 1

Determine el valor numérico de
$P = \cos 0° + \text{sen}90° - \tan 180°$

Recuerda:

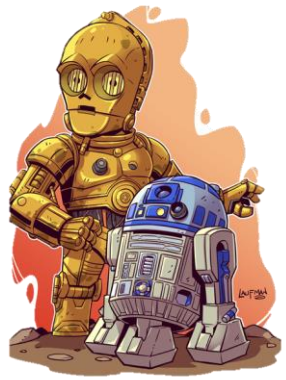
R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

$P = \cos 0° + \text{sen}90° - \tan 180°$

$P = 1 + 1 - 0$

$P = 2$



HELICO-PRACTICE 2

Determine el valor numérico de:

$$E = (2\text{sen}270° + 5\cos360°)^2$$

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

$$E = (2\text{sen}270° + 5\cos360°)^2$$

$$E = (\ 2(-1) + 5(1)\ )^2$$

$$E = (-2 + 5)^2$$

$$E = (3)^2$$

$$E = 9$$

HELICO-PRACTICE 3

Determine el valor numérico de:

$$F = \frac{5\sec 0° - 3\csc 270°}{3\cos 360° + \cos 180°}$$

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

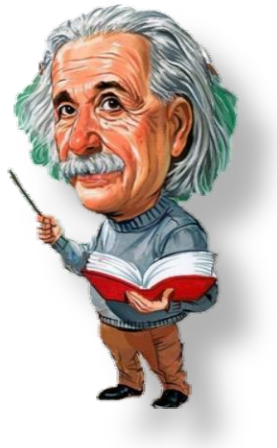
$$F = \frac{5\sec 0° - 3\csc 270°}{3\cos 360° + \cos 180°}$$

$$F = \frac{5(1) - 3(-1)}{3(1) + (-1)}$$

¡Muy bien!

$$F = \frac{5 + 3}{3 - 1}$$

$$F = \frac{8}{2} \Rightarrow F = 4$$



HELICO-PRACTICE 4

Camila ha heredado un terreno de forma rectangular, tal como muestra la figura. Calcule el área de dicho terreno

Resolución:

(4cos0° - 6sen270°)m

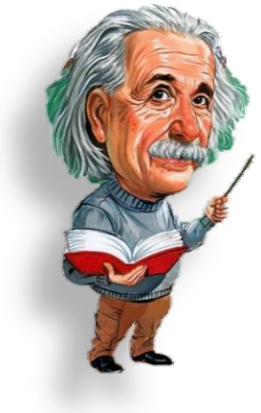
$(4(1) - 6(-1))m$

$10m$

(8sen90°.cos360°)

$(8(1).(1))m$

$8m$



Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Piden:

$A_{\blacksquare}$ = BxH = (8m)x(10m)

$A_{\blacksquare} = 80m^2$

HELICO-PRACTICE 5

Si α = 30°, calcule el valor numérico de:
J = csc3α + 2tan6α – 3sen9α

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

$J = \csc 3\alpha + 2\tan 6\alpha - 3\operatorname{sen} 9\alpha$

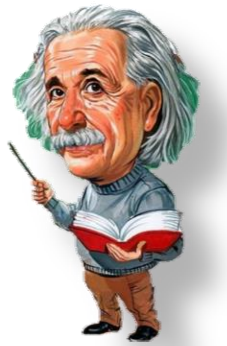
$J = \csc 90° + 2\tan 180° - 3\operatorname{sen} 270°$

$J = 1 + 2(0) - 3(-1)$

$J = 1 + 3$

$\boxed{J = 4}$

¡Muy bien!



HELICO-PRACTICE 6

Calcule el valor de x si:
$x\cos 0° + 3\operatorname{sen} 270° = 5\csc 90°$

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

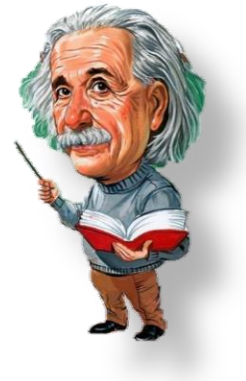
$$x\cos 0° + 3\operatorname{sen} 270° = 5\csc 90°$$

$$x(1) + 3(-1) = 5(1)$$

$$x - 3 = 5$$

$$x = 8$$

¡Muy bien!



HELICO-PRACTICE 7

Determine el valor numérico de x si:

$$\sec 180^\circ = \frac{3x-2}{x-2}$$

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	O	1	0	-1
COS	1	O	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

$$\sec 180^\circ = \frac{3x-2}{x-2}$$

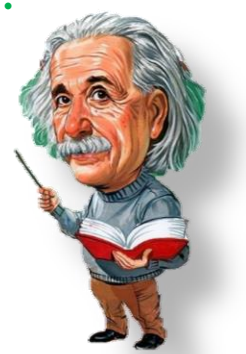
$$-1 = \frac{3x-2}{x-2}$$

$$-x + 2 = 3x - 2$$

$$4 = 4x$$

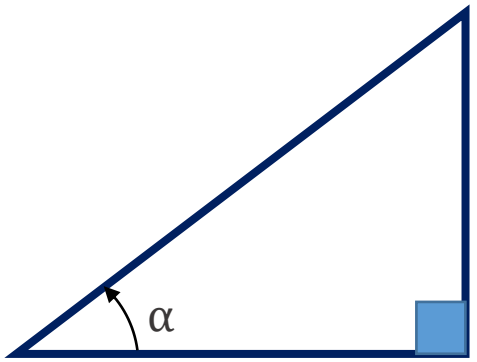
$$x = 1$$

¡Muy bien!



HELICO-PRACTICE 8

Del gráfico, calcule tanα



$2\cos360° + \cot90°$

$C.O = 2$

$\sec360° - 3\cos180°$

$C.A = 4$

Recuerda:

R.T	0° ; 360°	90°	180°	270°
SEN	0	1	0	-1
COS	1	0	-1	0
TAN	0	N.D	0	N.D
COT	N.D	0	N.D	0
SEC	1	N.D	-1	N.D
CSC	N	1	N.D	-1

Resolución:

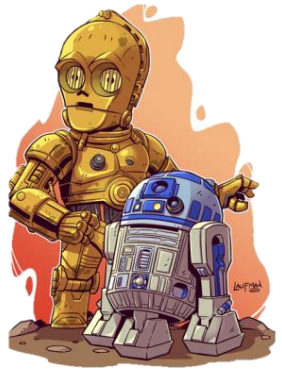
$$\tan\alpha = \frac{C.O}{C.A}$$

$$* \ 2\cos360° + \cot90° = 2(1) + 0 = 2$$

$$* \ \sec360° - 3\cos180° = (1) - 3(-1) = 4$$

$$\tan\alpha = \frac{2}{4}$$

$$\boxed{\tan\alpha = \frac{1}{2}}$$



COLEGIOS
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SISTEMA HELICOIDAL

MUCHAS GRACIAS POR TU ATENCIÓN

Tu curso amigo
TRIGONOMETRÍA