

Teorema de Pitagoras
 $b^2 = a^2 + c^2$
 $\alpha + \beta = 90^\circ$

- $\text{Sen } \alpha = \frac{a}{b}$
- $\text{Cos } \alpha = \frac{c}{b}$
- $\text{Tg } \alpha = \frac{a}{c}$
- $\text{Ctg } \alpha = \frac{c}{a}$
- $\text{Sec } \alpha = \frac{b}{c}$
- $\text{Csc } \alpha = \frac{b}{a}$

$\text{Sen } \alpha \cdot \text{Csc } \alpha = \frac{a}{b} \cdot \frac{b}{a} = 1$

Funciones Inversas
Funciones Recíprocas
 $\text{Sen } \alpha \cdot \text{Csc } \alpha = 1$
 $\text{Cos } \alpha \cdot \text{Sec } \alpha = 1$
 $\text{Tg } \alpha \cdot \text{Ctg } \alpha = 1$

Co - Funciones o Co - Razones

- $\text{Sen } \alpha = \text{Cos } \beta$
- $\text{Cos } \alpha = \text{Sen } \beta$
- $\text{Tg } \alpha = \text{Ctg } \beta$
- $\text{Ctg } \alpha = \text{Tg } \beta$
- $\text{Sec } \alpha = \text{Csc } \beta$
- $\text{Csc } \alpha = \text{Sec } \beta$

$\alpha + \beta = 90^\circ$

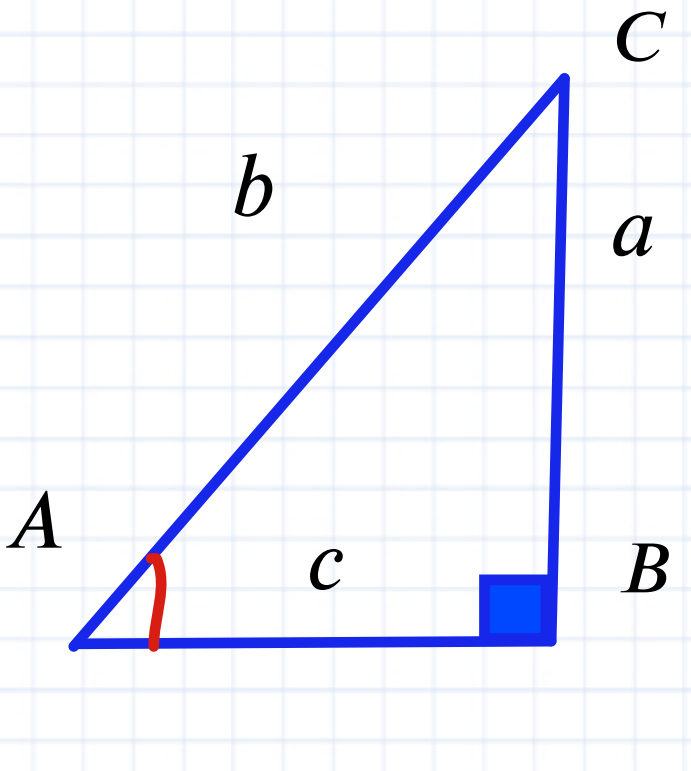
$\text{Sen } 60^\circ = \text{Cos } 30^\circ$
 $\text{Cos } 15^\circ = \text{Sen } 75^\circ$
 $\text{Tg } 18^\circ = \text{Ctg } 72^\circ$

EJEMPLOS DE APLICACION

1

En un triángulo rectángulo ABC recto en B reducir :

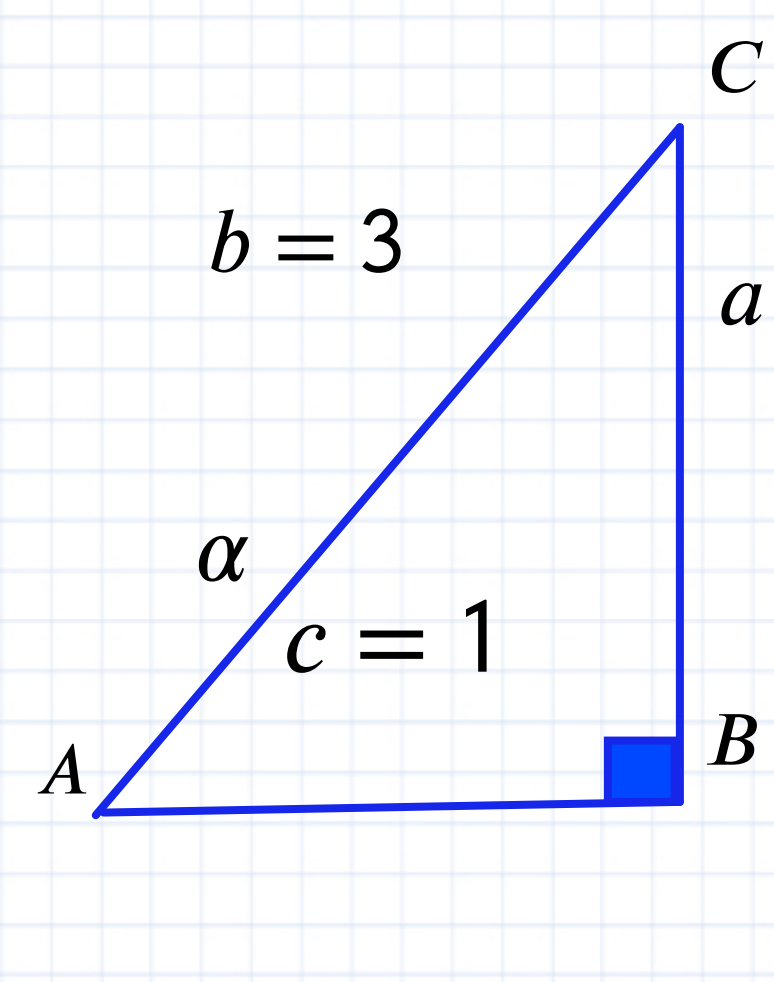
$E = \text{sen}A \text{sec}C + \text{cos}C \text{csc}A$



$E = \frac{a}{b} \cdot \frac{b}{c} + \frac{c}{b} \cdot \frac{b}{a}$
 $E = 2$

2

Si : α es un ángulo agudo tal que $\text{cos} \alpha = \frac{1}{3}$.
 . Calcular $\text{tg} \alpha$.



$\text{Cos } \alpha = \frac{c}{b}$
 $\text{Cos } \alpha = \frac{1}{3}$
 $b^2 = a^2 + c^2$
 $3^2 = a^2 + 1^2$
 $9 = a^2 + 1$
 $9 - 1 = a^2$
 $8 = a^2$
 $8 = a$
 $2\sqrt{2} = a$

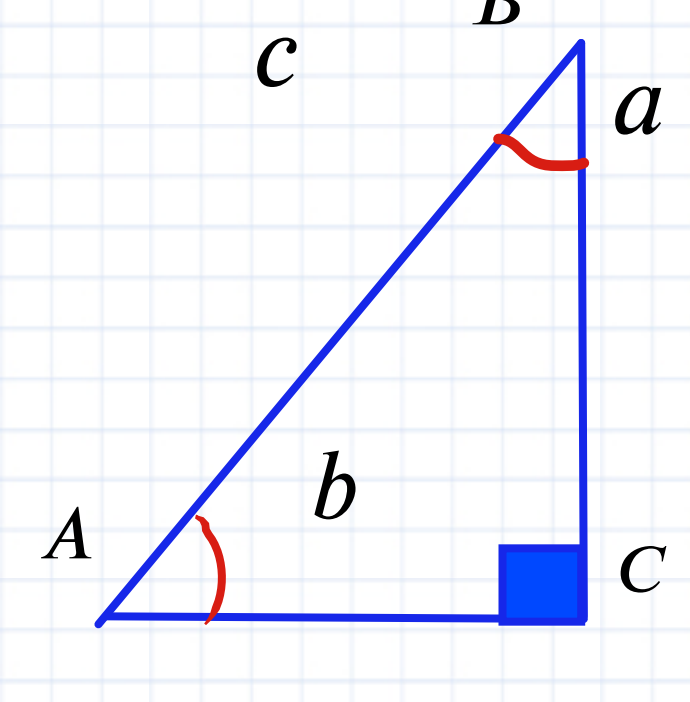
$\text{Tg } \alpha = \frac{a}{c}$
 $\text{Tg } \alpha = \frac{2\sqrt{2}}{1}$
 $\text{Tg } \alpha = 2\sqrt{2}$

EJERCICIOS DE APLICACION

1

En un triángulo ABC recto en C simplificar :

$E = a \cdot \text{ctg}A - c \cdot \text{sen}B$



$E = \frac{b}{a} - c \cdot \frac{b}{c}$
 $E = \frac{b}{a} - b$
 $E = 0$

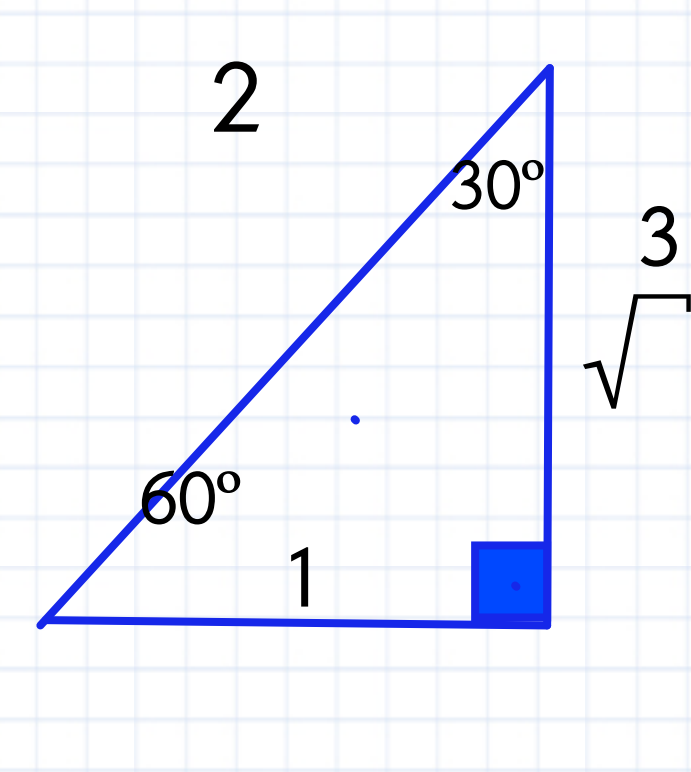
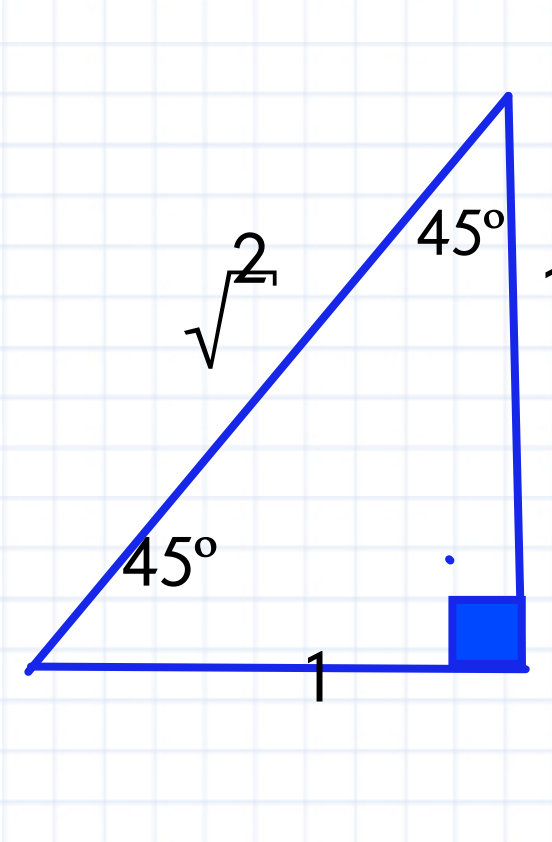
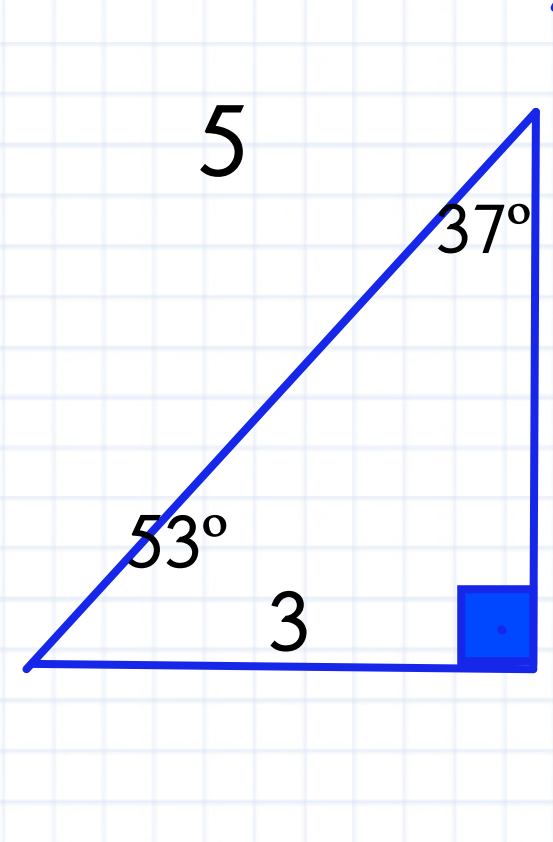
EJEMPLOS

Si : $\text{sen } 2x = \text{cos } 80^\circ$. Calcular : "x"

1

$2x + 80 = 90^\circ$

$\text{Tg } 90^\circ = \text{Indefinido}$
 $\text{Tg } 90^\circ = \infty$
 $\text{Tg } 90^\circ = \ni$



EJEMPLOS

1

Calcular : $E = \text{sen}^2 30^\circ + \text{tg} 37^\circ$

$E = \left(\frac{1}{2}\right)^2 + \frac{3}{4} = \frac{1}{4} + \frac{3}{4} = \frac{4}{4} = 1$

2

Evaluar : $E = \frac{\text{sen} 45^\circ + \text{cos} 60^\circ}{\text{csc} 30^\circ}$

$E = \frac{\frac{1}{\sqrt{2}} + \frac{1}{2}}{\frac{1}{\frac{1}{2}}} = \frac{\frac{1}{\sqrt{2}} + \frac{1}{2}}{2} = \frac{\frac{2}{2\sqrt{2}} + \frac{1}{2}}{2} = \frac{\frac{2}{2\sqrt{2}} + \frac{1}{2}}{2} = \frac{1}{2}$