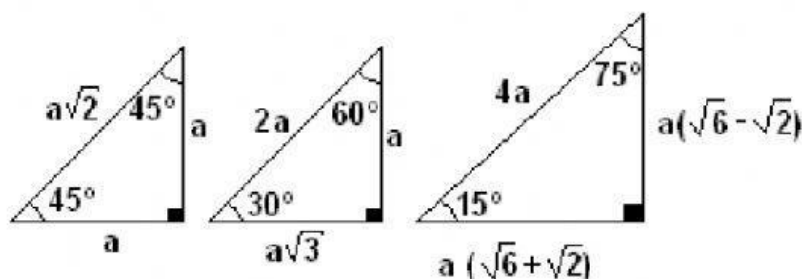


# MATEMÁTICA

## IV SECUNDARIA

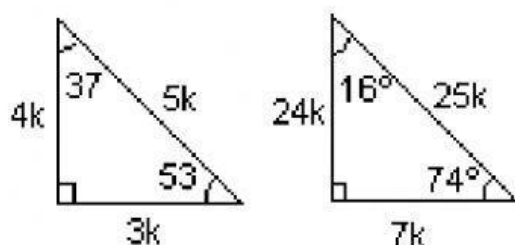
### Ficha 11: Razones trigonométricas de ángulos notables

#### RAZONES TRIGONOMÉTRICAS DE 15°, 30°, 45°, 60° y 75°



| Ángulo     | 15°                       | 30°           | 45°          | 60°           | 75°                       |
|------------|---------------------------|---------------|--------------|---------------|---------------------------|
| Seno       | $(\sqrt{6} - \sqrt{2})/4$ | $1/2$         | $\sqrt{2}/2$ | $\sqrt{3}/2$  | $(\sqrt{6} + \sqrt{2})/4$ |
| Coseno     | $(\sqrt{6} + \sqrt{2})/4$ | $\sqrt{3}/2$  | $\sqrt{2}/2$ | $1/2$         | $(\sqrt{6} - \sqrt{2})/4$ |
| Tangente   | $2 - \sqrt{3}$            | $\sqrt{3}/3$  | $1$          | $\sqrt{3}$    | $2 + \sqrt{3}$            |
| Cotangente | $2 + \sqrt{3}$            | $\sqrt{3}$    | $1$          | $\sqrt{3}/3$  | $2 - \sqrt{3}$            |
| Secante    | $\sqrt{6} - \sqrt{2}$     | $2\sqrt{3}/3$ | $\sqrt{2}$   | $2$           | $\sqrt{6} + \sqrt{2}$     |
| Cosecante  | $\sqrt{6} + \sqrt{2}$     | $2$           | $\sqrt{2}$   | $2\sqrt{3}/3$ | $\sqrt{6} - \sqrt{2}$     |

#### RAZONES TRIGONOMÉTRICAS DE 37°, 53°, 16° y 74°

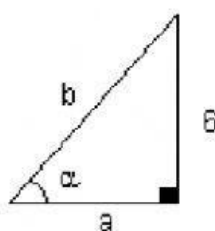


|            | 37°           | 53°           | 16°             | 74°             |
|------------|---------------|---------------|-----------------|-----------------|
| Seno       | $\frac{3}{5}$ | $\frac{4}{5}$ | $\frac{7}{25}$  | $\frac{24}{25}$ |
| Coseno     | $\frac{4}{5}$ | $\frac{3}{5}$ | $\frac{24}{25}$ | $\frac{7}{25}$  |
| Tangente   | $\frac{3}{4}$ | $\frac{4}{3}$ | $\frac{7}{24}$  | $\frac{24}{7}$  |
| Cotangente | $\frac{4}{3}$ | $\frac{3}{4}$ | $\frac{24}{7}$  | $\frac{7}{24}$  |
| Secante    | $\frac{5}{4}$ | $\frac{5}{3}$ | $\frac{25}{24}$ | $\frac{25}{7}$  |
| Cosecante  | $\frac{5}{3}$ | $\frac{5}{4}$ | $\frac{25}{7}$  | $\frac{25}{24}$ |



## EJERCICIOS DE APLICACIÓN

1. Calcula "x" en:  $(x+2) \cos 60^\circ = 6$
2. Si  $\tan x = \frac{1}{2}$  calcula  $M = \sqrt{5} \cos x + \operatorname{Ctg} x$
3. Si  $\tan \alpha = \frac{1}{3}$ ; En la figura, calcula "a + b"



4. En un triángulo rectángulo ABC (recto en B).

Reduce

$$E = \frac{\operatorname{Sen} A + \operatorname{Cos} A}{\operatorname{Sen} C + \operatorname{Cos} C}$$

5. Si:  $7 = 7^{1 + \operatorname{Sen} \theta - \operatorname{Cos} \alpha}$ .  
Calcula

$$\frac{\operatorname{Ctg} \frac{\alpha + \theta}{2} + 2 \operatorname{Tan} \theta}{2 \operatorname{Ctg} \alpha + 1}$$

6. Calcula E en:  $E = 7(\operatorname{Sen} 53^\circ + \operatorname{Sen} 37^\circ)^{-1} + \operatorname{Sec} 60^\circ$

7. Si:  $\operatorname{Tg} \alpha = \frac{24}{7}$

Calcula  $\operatorname{Sen} \alpha + \operatorname{Cos} \alpha$  ( $\alpha$  es ángulo agudo)

8. Si  $\alpha = 15^\circ$

Calcula  $L = \operatorname{Sen} \alpha \operatorname{Sen} 2\alpha \cdot \operatorname{Sen} 3\alpha \cdot \operatorname{Sen} 4\alpha \cdot \operatorname{Sec} 5\alpha$

9. Calcula x en:  $\operatorname{Cos} 60^\circ + \operatorname{Sec} 60^\circ = \operatorname{Tan}^2 60^\circ - x \operatorname{Sen} 30^\circ$