

## Identidades para la suma y diferencia de ángulos

$$\operatorname{sen}(a+b) = \operatorname{sen} a \cos b + \cos a \operatorname{sen} b$$

$$\operatorname{sen}(a-b) = \operatorname{sen} a \cos b - \cos a \operatorname{sen} b$$

$$\cos(a+b) = \cos a \cos b - \operatorname{sen} a \operatorname{sen} b$$

$$\cos(a-b) = \cos a \cos b + \operatorname{sen} a \operatorname{sen} b$$

$$\operatorname{tg}(a+b) = \frac{\operatorname{tg} a + \operatorname{tg} b}{1 - \operatorname{tg} a \cdot \operatorname{tg} b}$$

$$\operatorname{tg}(a-b) = \frac{\operatorname{tg} a - \operatorname{tg} b}{1 + \operatorname{tg} a \cdot \operatorname{tg} b}$$

$$\operatorname{sen} 75^\circ = \operatorname{sen}(45^\circ + 30^\circ) = \operatorname{sen} 45^\circ \cos 30^\circ + \cos 45^\circ \operatorname{sen} 30^\circ =$$

$$= \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2} \cdot \frac{1}{2} = \frac{\sqrt{2}}{4} (\sqrt{3} + 1)$$

$$\cos 15^\circ = \cos(45^\circ - 30^\circ) = \cos 45^\circ \cos 30^\circ + \operatorname{sen} 45^\circ \operatorname{sen} 30^\circ =$$

$$= \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2} - \frac{\sqrt{2}}{2} \cdot \frac{1}{2} = \frac{\sqrt{2}}{4} (\sqrt{3} - 1)$$

$$\operatorname{tg} 15^\circ = \frac{\operatorname{tg} 45^\circ - \operatorname{tg} 30^\circ}{1 + \operatorname{tg} 45^\circ \cdot \operatorname{tg} 30^\circ} = \frac{1 - \frac{\sqrt{3}}{3}}{1 + \frac{\sqrt{3}}{3}} = \frac{3 - \sqrt{3}}{3 + \sqrt{3}} = 2 - \sqrt{3}$$