• Suma y diferencia de ángulos

$$sen(x \pm y) = sen(x) cos(y) \pm cos(x) sen(y)$$

$$cos(x \pm y) = cos(x) cos(y) \mp sen(x) sen(y)$$

$$tan(x \pm y) = \frac{tan(x) \pm tan(y)}{1 \mp tan(x) tan(y)}$$

• Angulo doble

$$sen(2x) = 2 sen(x) cos(x)$$

$$cos(2x) = cos^{2}(x) - sen^{2}(x) = 2 cos^{2}(x) - 1 = 1 - 2 sen^{2}(x)$$

• Angulo mitad

$$sen^{2}(x) = \frac{1}{2}(1 - \cos(2x))$$

$$cos^{2}(x) = \frac{1}{2}(1 + \cos(2x))$$

$$tan\left(\frac{x}{2}\right) = \frac{1 - \cos(x)}{\sin(x)} = \frac{\sin(x)}{1 + \cos(x)}$$

Producto

$$sen(x) sen(y) = \frac{1}{2} [cos(x - y) - cos(x + y)]$$

$$cos(x) cos(y) = \frac{1}{2} [cos(x - y) + cos(x + y)]$$

$$sen(x) cos(y) = \frac{1}{2} [sen(x + y) + sen(x - y)]$$

## A.6.5 Identidades trigonométricas

• Identidades pitagóricas

$$sen^{2}(x) + cos^{2}(x) = 1$$
$$tan^{2}(x) + 1 = sec^{2}(x)$$
$$cotan^{2}(x) + 1 = cosec^{2}(x)$$