60.

$$\frac{1-2\cos^2\alpha}{\text{sen}\,\alpha\cos\alpha} = \text{tg}\,\alpha - \cot\text{g}\,\alpha$$

$$\frac{1-2\cos^2\alpha}{\text{sen}\,\alpha\cos\alpha} = \frac{\text{sen}^2\alpha + \cos^2\alpha - 2\cos^2\alpha}{\text{sen}\,\alpha\cos\alpha} = \frac{\text{sen}^2\alpha - \cos^2\alpha}{\text{sen}\,\alpha\cos\alpha} =$$

$$= \frac{\text{sen}^2\alpha}{\text{sen}\,\alpha\cos\alpha} - \frac{\cos^2\alpha}{\text{sen}\,\alpha\cos\alpha} = \frac{\text{sen}\,\alpha}{\cos\alpha} - \frac{\cos\alpha}{\text{sen}\,\alpha} = \text{tg}\,\alpha - \cot\text{g}\,\alpha$$

61.

$$\frac{\text{tg}\,\alpha + \text{tg}\,\beta}{\cot\text{g}\,\alpha + \cot\text{g}\,\beta} = \text{tg}\,\alpha \cdot \text{tg}\,\beta$$

$$\frac{\text{tg}\,\alpha + \text{tg}\,\beta}{\cot\text{g}\,\alpha + \cot\text{g}\,\beta} = \frac{\text{tg}\,\alpha + \text{tg}\,\beta}{\dfrac{1}{\text{tg}\,\alpha} + \dfrac{1}{\text{tg}\,\beta}} = \frac{\text{tg}\,\alpha + \text{tg}\,\beta}{\dfrac{\text{tg}\,\beta + \text{tg}\,\alpha}{\text{tg}\,\alpha \cdot \text{tg}\,\beta}} =$$

$$= \frac{\text{tg}\,\alpha \cdot \text{tg}\,\beta\,(\text{tg}\,\alpha + \text{tg}\,\beta)}{\text{tg}\,\beta + \text{tg}\,\alpha} = \text{tg}\,\alpha \cdot \text{tg}\,\beta$$

62.

$$(\text{sen}\,\alpha + \cos\beta)^2 + (\cos\beta + \text{sen}\,\alpha)(\cos\beta - \text{sen}\,\alpha) = 2\cos\beta(\text{sen}\,\alpha + \cos\beta)$$

$$(\text{sen}\,\alpha + \cos\beta)^2 + (\cos\beta + \text{sen}\,\alpha)(\cos\beta - \text{sen}\,\alpha) =$$

$$= \text{sen}^2\alpha + 2\,\text{sen}\,\alpha\cos\beta + \cos^2\beta + \cos^2\beta - \text{sen}^2\alpha =$$

$$= 2\,\text{sen}\,\alpha\cos\beta + 2\cos^2\beta = 2\cos\beta(\text{sen}\,\alpha + \cos\beta)$$

63.

$$(\text{sen}\,\alpha + \cos\beta)^2 + (\cos\beta + \text{sen}\,\alpha)(\cos\beta - \text{sen}\,\alpha) = -2\cos\beta(\text{sen}\,\alpha - \cos\beta)$$

$$(\text{sen}\,\alpha - \cos\beta)^2 + (\cos\beta + \text{sen}\,\alpha)(\cos\beta - \text{sen}\,\alpha) =$$

$$= \text{sen}^2\alpha - 2\,\text{sen}\,\alpha\cos\beta + \cos^2\beta + \cos^2\beta - \text{sen}^2\alpha =$$

$$= 2\cos^2\beta - 2\,\text{sen}\,\alpha\cos\beta = 2\cos\beta(\cos\beta - \text{sen}\,\alpha) = -2\cos\beta(\text{sen}\,\alpha - \cos\beta)$$