

Ejercicios resueltos

$$21.- \quad 3 \operatorname{sen}^2 \alpha + 4 \operatorname{cos}^2 \alpha = 3 + \operatorname{cos}^2 \alpha$$

$$3(1 - \operatorname{cos}^2 \alpha) + 4 \operatorname{cos}^2 \alpha = 3 - 3 \operatorname{cos}^2 \alpha + 4 \operatorname{cos}^2 \alpha = 3 + \operatorname{cos}^2 \alpha$$

$$22.- \quad 9 \operatorname{sec}^2 \alpha - 5 \operatorname{tg}^2 \alpha = 5 + 4 \operatorname{sec}^2 \alpha$$

(recuerda:  $1 + \operatorname{tg}^2 \alpha = \operatorname{sec}^2 \alpha$ ;  $\operatorname{tg}^2 \alpha = \operatorname{sec}^2 \alpha - 1$ )

$$9 \operatorname{sec}^2 \alpha - 5(\operatorname{sec}^2 \alpha - 1) = 5 + 4 \operatorname{sec}^2 \alpha$$

$$23.- \quad 1 - \frac{\operatorname{cos}^2 \alpha}{1 + \operatorname{sen} \alpha} = \operatorname{sen} \alpha$$

$$\frac{1 + \operatorname{sen} \alpha - \operatorname{cos}^2 \alpha}{1 + \operatorname{sen} \alpha} = \frac{1 - \operatorname{cos}^2 \alpha + \operatorname{sen} \alpha}{1 + \operatorname{sen} \alpha} = \frac{\operatorname{sen}^2 \alpha + \operatorname{sen} \alpha}{1 + \operatorname{sen} \alpha} = \frac{\operatorname{sen} \alpha (\operatorname{sen} \alpha + 1)}{\operatorname{sen} \alpha + 1} = \operatorname{sen} \alpha$$

$$24.- \quad 1 - \frac{\operatorname{sen}^2 \alpha}{1 - \operatorname{cos} \alpha} = -\operatorname{cos} \alpha$$

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

$$25.- \quad \frac{1 + \operatorname{tg} \alpha}{1 - \operatorname{tg} \alpha} = \frac{\operatorname{cotg} \alpha + 1}{\operatorname{cotg} \alpha - 1}$$

$$\frac{1 + \operatorname{tg} \alpha}{1 - \operatorname{tg} \alpha} = \frac{1 + \frac{1}{\operatorname{cotg} \alpha}}{1 - \frac{1}{\operatorname{cotg} \alpha}} = \frac{\frac{\operatorname{cotg} \alpha + 1}{\operatorname{cotg} \alpha}}{\frac{\operatorname{cotg} \alpha - 1}{\operatorname{cotg} \alpha}} = \frac{\operatorname{cotg} \alpha + 1}{\operatorname{cotg} \alpha - 1}$$

$$26.- \quad \frac{\operatorname{cosec} \alpha - 1}{\operatorname{cosec} \alpha + 1} = \frac{1 - \operatorname{sen} \alpha}{1 + \operatorname{sen} \alpha}$$

$$\frac{\frac{1}{\operatorname{sen} \alpha} - 1}{\frac{1}{\operatorname{sen} \alpha} + 1} = \frac{\frac{1 - \operatorname{sen} \alpha}{\operatorname{sen} \alpha}}{\frac{1 + \operatorname{sen} \alpha}{\operatorname{sen} \alpha}} = \frac{1 - \operatorname{sen} \alpha}{1 + \operatorname{sen} \alpha}$$

$$27.- \quad \frac{\operatorname{sec} \alpha}{\operatorname{cosec} \alpha} + \frac{\operatorname{sen} \alpha}{\operatorname{cos} \alpha} = 2 \operatorname{tg} \alpha$$

$$\frac{\frac{1}{\operatorname{cos} \alpha}}{\frac{1}{\operatorname{sen} \alpha}} + \frac{\operatorname{sen} \alpha}{\operatorname{cos} \alpha} = \frac{\operatorname{sen} \alpha}{\operatorname{cos} \alpha} + \frac{\operatorname{sen} \alpha}{\operatorname{cos} \alpha} = \operatorname{tg} \alpha + \operatorname{tg} \alpha = 2 \operatorname{tg} \alpha$$