Ejercicios resueltos

28.- $\dfrac{cosec\,a-1}{cotg\,a}=\dfrac{cotg\,a}{cosec\,a+1}$

$$\frac{(cosec\,\alpha-1)(cosec\,\alpha+1)}{cotg\,\alpha(cosec\,\alpha+1)}=\frac{cosec^2\,\alpha-1}{cotg\,\alpha(cosec\,\alpha+1)}=\frac{cotg^2\,\alpha}{cotg\,\alpha(cosec\,\alpha+1)}=\frac{cotg\,\alpha}{cosec\,\alpha+1}$$

29.- $\dfrac{1+sen\,a}{1-sen\,a}=\dfrac{cosec\,a+1}{cosec\,a-1}$

$$\frac{cosec\,\alpha+1}{cosec\,\alpha-1}=\frac{\frac{1}{sen\,\alpha}+1}{\frac{1}{sen\,\alpha}-1}=\frac{\frac{1+sen\,\alpha}{sen\,\alpha}}{\frac{1-sen\,\alpha}{sen\,\alpha}}=\frac{1+sen\,\alpha}{1-sen\,\alpha}$$

30.- $\dfrac{\cos a+1}{\cos a-1}=\dfrac{1+\sec a}{1-\sec a}$

$$\frac{1+\sec\alpha}{1-\sec\alpha}=\frac{1+\frac{1}{\cos\alpha}}{1-\frac{1}{\cos\alpha}}=\frac{\frac{\cos\alpha+1}{\cos\alpha}}{\frac{\cos\alpha-1}{\cos\alpha}}=\frac{\cos\alpha+1}{\cos\alpha-1}$$

31.- $\dfrac{1-sen\,\alpha}{\cos\alpha}+\dfrac{\cos\alpha}{1-sen\,\alpha}=2\sec\alpha$

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

$$\frac{2(1-sen\,\alpha)}{\cos\alpha(1-sen\,\alpha)}=\frac{2}{\cos\alpha}=2\sec\alpha$$

32.- $\dfrac{\cos\alpha}{1+\sin\alpha}+\dfrac{1+\sin\alpha}{\cos\alpha}=2\sec\alpha$

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

$$\frac{2(1+sen\,\alpha)}{\cos\alpha(1+sen\,\alpha)}=\frac{2}{\cos\alpha}=2\sec\alpha$$

33.- $\dfrac{\sin\alpha}{\sin\alpha-\cos\alpha}=\dfrac{1}{1-\cot\alpha}$

$$\frac{1}{1-cot\,\alpha}=\frac{1}{1-\frac{\cos\alpha}{sen\,\alpha}}=\frac{1}{\frac{sen\,\alpha-\cos\alpha}{sen\,\alpha}}=\frac{sen\,\alpha}{sen\,\alpha-\cos\alpha}$$