24. $(1+\cot g^2(x))(1-\cos^2(x))=1$ para todo x real, $x \neq k\pi$

$$=\left(1+\left(\frac{\cos(x)}{\operatorname{sen}(x)}\right)^2\right)\cdot \operatorname{sen}(x)^2=1$$

$$=\left(1+\frac{\cos(x)^2}{\operatorname{sen}(x)^2}\right)\cdot \operatorname{sen}(x)^2=1$$

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

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

$$=\frac{1}{\operatorname{sen}(x)^2}\cdot \operatorname{sen}(x)^2=1$$

$$1=1$$

25 $2\sec(x)\cdot tg(x)=\frac{1}{\operatorname{cossec}(x)-1}+\frac{1}{\operatorname{cossec}(x)+1}$ para todo x, $x\neq\frac{\pi}{2}+k\pi$

$$2\cdot\frac{1}{\cos(x)}\cdot\frac{\operatorname{sen}(x)}{\cos(x)}=\frac{\frac{1}{1}}{\operatorname{sen}(x)}-1+\frac{1}{\frac{1-\operatorname{sen}(x)}{\operatorname{sen}(x)}}$$

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

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26. $(1-tg(x))^2+(1-cotg(x))^2=(sec(x)-cossec(x))^2$
para todo x real, $x \neq \frac{k\pi}{2}$

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

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

$$2sen(x)=\frac{1}{sen(x)}+\frac{1}{sen(x)}\quad 2sen(x)-\frac{1}{sen(x)}-\frac{1}{sen(x)}=0$$

$0=0$

27. $$\frac{1-cos(x)}{sen(x)\cdot cos(x)}+sen(x)=\frac{1-cos(x)}{tg(x)}$$

$$\frac{1-cos(x)}{sen(x)\cdot cos(x)}+\frac{sen(x)}{1}=\frac{1-cos(x)}{\frac{sen(x)}{cos(x)}}+\frac{sen(x)}{cos(x)}$$

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

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

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

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

28. $\cos^4(x)+\operatorname{sen}^4(x)+2(\operatorname{sen}(x)\cdot\cos(x))^2=1$

$\cos(x)^4+\operatorname{sen}(x)^4+2(\operatorname{sen}(x)^2\cos(x)^2)$

$\cos(x)^4+2\operatorname{sen}(x)^2\cos(x)^2+\operatorname{sen}(x)^4$

$(\cos(x)^2+\operatorname{sen}(x)^2)^2$

$1^2=1$

$1=1$

29. $\dfrac{\operatorname{sen}(x)}{\operatorname{cossec}(x)}+\dfrac{\cos(x)}{\operatorname{sec}(x)}=1$

$$\frac{\operatorname{sen}(x)}{\frac{1}{\operatorname{sen}(x)}}+\frac{\cos(x)}{\frac{1}{\cos(x)}}=1$$

30. tg

33) $\dfrac{\cot g(x)^2}{1+\cot g(x)^2} = \cos^2(x)^2$

$$\frac{\left(\frac{\cos(x)}{\operatorname{sen}(x)}\right)^2}{1+\operatorname{cossec}(x)^2} = \frac{\frac{\cos(x)^2}{\operatorname{sen}(x)^2}}{\frac{1}{\operatorname{sen}(x)^2}} \cdot \frac{\operatorname{sen}(x)^2}{1} = \cos(x)^2$$

34) $\dfrac{\operatorname{sen}(x)^3 - \cos(x)^3}{\operatorname{sen}(x) - \cos(x)} = 1 + \operatorname{sen}(x) \cdot \cos(x)$

$$\frac{(\operatorname{sen}(x) - \cos(x)) \cdot (\operatorname{sen}(x)^2 + \operatorname{sen}(x)\cos(x) + \cos(x)^2)}{\operatorname{sen}(x) - \cos(x)}$$

$$\frac{(\operatorname{sen}(x) - \cos(x)) \cdot (1 + \operatorname{sen}(x) \cdot \cos(x))}{\operatorname{sen}(x) - \cos(x)}$$

$1 + \operatorname{sen}(x) \cdot \cos(x)$

$= 1 + \operatorname{sen}(x)\cos(x)$

36) $2(\operatorname{sen}(x) + \operatorname{tg}(x))(\cos(x) + \cot g(x)) = (1 + \operatorname{sen}(x) + \cos(x))^2$

$$\left(\operatorname{sen}(x) + \frac{\operatorname{sen}(x)}{\cos(x)}\right)\left(\cos(x) + \frac{\cos(x)}{\operatorname{sen}(x)}\right)$$

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$$\left(\frac{\cancel{\operatorname{sen}(x)}\cdot\cos(x)+\operatorname{sen}(x)}{\cancel{\cos(x)}}\right)\left(\frac{\cancel{\cos(x)}\cdot\operatorname{sen}(x)+\cos(x)}{\cancel{\operatorname{sen}(x)}}\right)$$

$2\cdot(\cos(x)+1)(\operatorname{sen}(x)+1)$

$2\cos(x)+\operatorname{sen}(x)+2\cos(x)+2\operatorname{sen}(x)+2$

$2\operatorname{sen}(x)\cos(x)+2\cos(x)+2\operatorname{sen}(x)+2$

$\operatorname{sen}(2x)+2\cos(x)+2\operatorname{sen}(x)+2=\operatorname{sen}(2x)+2\operatorname{sen}(x)+$
$2\cos(x)+2$

$\cdot(1+\operatorname{sen}(x)+\cos(x))(1+\operatorname{sen}(x)+\cos(x))$

$1+\operatorname{sen}(x)+\cos(x)+\operatorname{sen}(x)+\operatorname{sen}(x)^2+\operatorname{sen}(x)\operatorname{sen}(x)+$
$\cos(x)+\operatorname{sen}(x)\cos(x)+\cos(x)^2$

$=\cdot 1+2\operatorname{sen}(x)+2\cos(x)+2\operatorname{sen}(x)\cos(x)+\operatorname{sen}(x)^2+\cos(x)^2$

$2\cdot+2\operatorname{sen}(x)+2\cos(x)+\operatorname{sen}(2x)=\operatorname{sen}(2x)+2\operatorname{sen}(x)+2\cos(x)+$