Identità goniometriche

	risolubili mediante le relazioni fondamentali
1	$\frac{1+sen\,\alpha\cos\alpha}{sen\,\alpha}=cosec\,\alpha+\frac{1}{sec\,\alpha}$
2	$\frac{sen\,\alpha\cos\alpha-1}{\cos\alpha}=\frac{1}{cosec\,\alpha}-sec\,\alpha$
3	$\frac{(1-\cos\alpha)(\cos^2\alpha+\cos\alpha+1)}{\cos\alpha}=\frac{2\,sen^2\,\alpha-sen^4\,\alpha-1}{\cos^2\alpha}+\frac{1}{\cos\alpha}$
4	$\frac{\cos\alpha}{1-sen^2\,\alpha}+cosec\,\alpha=sen\,\alpha+sec\,\alpha+\frac{1-sen^2\,\alpha}{sen\,\alpha}$
5	$\frac{1}{ctg\,\alpha}+\frac{sen^2\,\alpha-1}{\cos^3\alpha}=\frac{1-sen\,\alpha-\cos^2\alpha}{sen\,\alpha\cos\alpha}$
6	$\frac{1}{tg\,\alpha}-\frac{1}{sec\,\alpha}=\frac{\cos\alpha(1-sen\,\alpha)}{sen\,\alpha}$
7	$\frac{1}{\cos\alpha(1+tg^2\,\alpha)}+\frac{1}{cosec\,\alpha}=\cos\alpha(tg\,\alpha+1)$
8	$sen^2\,\alpha+tg\,\alpha=\frac{sec\,\alpha(1-\cos^2\alpha)}{sen\,\alpha}+\frac{\cos^2\alpha-\cos^4\alpha}{1-sen^2\,\alpha}$
9	$\frac{1}{1+tg^2\,\alpha}+\frac{1}{cosec\,\alpha}=sen\,\alpha+\frac{1}{sec^2\,\alpha}$
10	$ctg\,\alpha+\frac{sen^2\,\alpha+sen\,\alpha-1}{sen\,\alpha\cos\alpha}=\frac{\cos\alpha}{1-sen^2\,\alpha}$
11	$sec\,\alpha-\cos\alpha=\frac{sen^2\,\alpha}{\cos\alpha}$
12	$\frac{2\cos^2\alpha-1}{1-sen^2\,\alpha}=1-tg^2\,\alpha$
13	$\frac{sen^2\,\alpha+tg^2\,\alpha}{1-\cos^4\alpha}=sec^2\,\alpha$
14	$\frac{tg^2\,\alpha+1}{tg^2\,\alpha-1}=\frac{tg\,\alpha+ctg\,\alpha}{tg\,\alpha-ctg\,\alpha}$
15	$sen^3\,\alpha=(\cos\alpha-\cos^3\alpha)\,tg\,\alpha$
16	$\frac{sen^2\,\alpha+tg^2\,\alpha}{1-\cos^4\alpha}=sec^2\,\alpha$
17	$\frac{\cos^2\alpha-\cos\alpha-1}{sen\,\alpha}+ctg\,\alpha=\frac{sen^3\,\alpha-sen\,\alpha}{\cos^2\alpha}$
18	$\frac{1}{2\cos^2\alpha-1}=\frac{1+tg^2\,\alpha}{1-tg^2\,\alpha}$
19	$\frac{1+sen\,\alpha}{ctg\,\alpha+\cos\alpha}=\frac{tg\,\alpha+sen\,\alpha}{1+\cos\alpha}$
20	$(sec\,\alpha+tg\,\alpha)^2=\frac{1+sen\,\alpha}{1-sen\,\alpha}$

Identità goniometriche

risolubili mediante angoli associati	
21	$sen^2(\pi-\alpha)+cos(\pi-\alpha)=1-cos\,\alpha-cos^2\alpha$
22	$sen^4(\pi-\alpha)=cos^4\alpha-1+2\,sen^2(\pi-\alpha)$
23	$1+sen\,\alpha-sec(\pi-\alpha)\,cos(\pi-\alpha)=sen(\pi-\alpha)\,sec\,\alpha\,cos\,\alpha$
24	$\dfrac{ctg\,\alpha}{cos^2(\pi-\alpha)}=tg\,\alpha-ctg(\pi-\alpha)$
25	$cos\,\alpha-sen\,\alpha=\dfrac{cos^2(\pi-\alpha)-sen^2(\pi-\alpha)}{sen(\pi-\alpha)-cos(\pi-\alpha)}$
26	$sen^2(\pi-\alpha)-cos(\pi-\alpha)-sen\,\alpha\,tg(\pi-\alpha)=sec\,\alpha+1-cos^2(\pi-\alpha)$
27	$ctg^2\alpha+\dfrac{1+2\,cos(\pi+\alpha)}{sen^2(\pi+\alpha)}=\dfrac{1+cos(\pi+\alpha)}{1-cos(\pi+\alpha)}$
28	$-cos(\pi+\alpha)-sec\,\alpha=sen(\pi+\alpha)\,tg(\pi+\alpha)$
29	$1+tg\,\alpha=tg\,\alpha[1+ctg(\pi+\alpha)]$
30	$ctg(\pi+\alpha)+tg\,\alpha=\dfrac{1}{sen(\pi+\alpha)\,cos(\pi+\alpha)}$
31	$ctg^2(\pi+\alpha)=\dfrac{1+ctg^2(\pi+\alpha)}{1+tg^2(\pi+\alpha)}$
32	$\dfrac{sec^2(\pi+\alpha)}{cosec(\pi+\alpha)}=[tg(\pi+\alpha)+ctg\,\alpha]\dfrac{sec(\pi+\alpha)}{cosec^2\alpha}$
33	$cosec(2\pi-\alpha)=-cos(2\pi-\alpha)\,ctg\,\alpha-sen\,\alpha$
34	$sen(2\pi-\alpha)\,ctg(2\pi-\alpha)+1=-\dfrac{sen\,\alpha+tg\,\alpha}{tg(2\pi-\alpha)}$
35	$\dfrac{cos(2\pi-\alpha)}{1+sen(2\pi-\alpha)}=\dfrac{1-sen(2\pi-\alpha)}{cos(2\pi-\alpha)}$
36	$sen(2\pi-\alpha)\,tg(2\pi-\alpha)=sec(2\pi-\alpha)-cos(2\pi-\alpha)$
37	$\dfrac{sen(2\pi-\alpha)}{sec^2(2\pi-\alpha)}=\dfrac{cos(2\pi-\alpha)}{ctg(2\pi-\alpha)+tg(2\pi-\alpha)}$
38	$ctg\,\alpha=\dfrac{sen(2\pi-\alpha)}{1-cos(-\alpha)}-cosec(2\pi-\alpha)$
39	$\dfrac{1+tg^2(-\alpha)}{1-tg^2(2\pi-\alpha)}=\dfrac{1}{2\,cos^2(-\alpha)-1}$
40	$\dfrac{cos(2\pi-\alpha)}{1-sen(-\alpha)}=tg(-\alpha)+sec(2\pi-\alpha)$

Identità goniometriche

risolubili mediante formule goniometriche	
41	$sen(\alpha+\beta)\, sen(\alpha-\beta) = sen^2\alpha - sen^2\beta$
42	$sen\,\alpha\, cos(\alpha+\beta) = cos\,\alpha\, sen(\alpha+\beta) - cos\,\beta$
43	$sen\,\alpha\, sen(\alpha-\beta) + cos\,\alpha\, cos(\alpha-\beta) = cos\,\beta$
44	$\dfrac{cos(\alpha+\beta)+cos(\alpha-\beta)}{sen(\alpha+\beta)+sen(\alpha-\beta)} = ctg\,\alpha$
45	$\dfrac{cos(\alpha-\beta)}{cos(\alpha+\beta)} = \dfrac{1+tg\,\alpha\, tg\,\beta}{1-tg\,\alpha\, tg\,\beta}$
46	$cos(\alpha-\beta) = (tg\,\alpha + ctg\,\beta)\, sen\,\beta\, cos\,\alpha$
47	$(tg\,\alpha + tg\,\beta)[cos(\alpha+\beta)+cos(\alpha-\beta)] = 2\, sen(\alpha+\beta)$
48	$sen\,11\alpha - sen\,\alpha = 2\, cos\,6\alpha\, sen\,5\alpha$
49	$\dfrac{cos\,4\alpha - cos\,8\alpha}{cos\,4\alpha + cos\,8\alpha} = tg\,6\alpha\, tg\,2\alpha$
50	$2\, cos\,2\alpha\, cos\,3\alpha = cos\,5\alpha + cos\,\alpha$
51	$\dfrac{sen\,3\alpha + sen\,\alpha}{sen\,5\alpha - sen\,\alpha} = cos\,\alpha\, sec\,3\alpha$
52	$cos^2 4\alpha = cos^2 2\alpha - sen\,6\alpha\, sen\,2\alpha$
53	$2\, sen\,3\alpha\, sen\,8\alpha = cos\,5\alpha - cos\,11\alpha$
54	$cos^4\alpha - sen^4\alpha = cos\,2\alpha$
55	$2\, cos\,2\alpha = (1 - cos\,2\alpha)\,(ctg^2\alpha - 1)$
56	$2\, sen\,2\alpha\, cos\,\alpha - sen\,3\alpha = sen\,\alpha$
57	$\dfrac{sen\,3\alpha - sen\,\alpha}{cos\,\alpha - cos\,3\alpha} = ctg\,2\alpha$
58	$2\, sen^2\dfrac{\alpha}{2} tg\,\alpha = tg\,\alpha - sen\,\alpha$
59	$2\, cos^2\dfrac{\alpha}{2} - cos\,\alpha = 1$
60	$2\, cos\,\alpha = (1 - cos\,\alpha)\left(ctg^2\dfrac{\alpha}{2} - 1\right)$

Identità goniometriche

di riepilogo	
61	$\frac{1}{cosec\,\alpha}+\frac{1-sen\,\alpha\cos\alpha}{\cos\alpha}=\frac{tg\,\alpha}{sen\,\alpha}$
62	$sen\,\alpha\cos\alpha\,cosec\,\alpha+sec\,\alpha=\frac{2-sen^2\,\alpha}{\cos\alpha}$
63	$tg\,\alpha+sen^2\,\alpha=\frac{sec\,\alpha(1-\cos^2\alpha)}{sen\,\alpha}+\frac{\cos^2\alpha-\cos^4\alpha}{1-sen^2\,\alpha}$
64	$\frac{1}{ctg\,\alpha}-\frac{1}{tg\,\alpha}=\frac{2\,sen^2\,\alpha-1}{sen\,\alpha\cos\alpha}$
65	$sen\,\alpha=\frac{tg\,\alpha}{\pm\sqrt{1+tg^2\,\alpha}}$
66	$\cos\alpha=\pm\frac{\sqrt{cosec^2\,\alpha-1}}{cosec\,\alpha}$
67	$\frac{2\,sen^2(\pi-\alpha)-1}{sen\,\alpha\cos(2\pi-\alpha)}+\cos(-\alpha)\,cosec(\pi-\alpha)=\frac{1}{ctg(\pi+\alpha)}$
68	$1+2\,sen(2\pi-\alpha)\cos(\pi+\alpha)=[sen(\pi-\alpha)-\cos(\pi+\alpha)]^2$
69	$\frac{1+\cos(\pi+\alpha)}{sen(2\pi-\alpha)\cos\alpha}=sen\,\alpha-tg\,\alpha-\frac{\cos(\pi+\alpha)+1}{tg(\pi+\alpha)}$
70	$[sen(\pi-\alpha)-\cos(\pi-\alpha)]^2=\frac{2\,sen(\pi-\alpha)}{sec(2\pi-\alpha)}+1$
71	$\frac{tg(\pi+\alpha)}{1-tg^2(\pi-\alpha)}=\frac{ctg(\pi+\alpha)}{ctg^2(2\pi-\alpha)-1}$
72	$-sen^3(2\pi-\alpha)=tg(\pi-\alpha)[\cos(-\alpha)+\cos^3(\pi-\alpha)]$
73	$\frac{sen\,\alpha(1+sen\,\alpha)\,tg(2\pi-\alpha)}{tg\,\alpha}=sen(\pi+\alpha)\,[1-sen(2\pi-\alpha)]$
74	$\frac{1}{2}sen\,2(\alpha+\beta)=sen(\alpha+\beta)\cos(\alpha+\beta)$
75	$2\,sen(\alpha-\beta)\cos(\alpha+\beta)=sen\,2\alpha-sen\,2\beta$
76	$\cos^4\frac{\alpha}{2}-sen^4\frac{\alpha}{2}=\cos\alpha$
77	$cosec\,\alpha+ctg\,\alpha=ctg\frac{\alpha}{2}$
78	$\frac{2\,sen\,\alpha-sen\,2\alpha}{2\,sen\,\alpha+sen\,2\alpha}=tg^2\frac{\alpha}{2}$
79	$\frac{sen\,6\alpha+sen\,2\alpha+\cos 2\alpha}{\cos 6\alpha+2\cos 2\alpha}=\frac{2\,tg\,4\alpha+sec\,4\alpha}{2+sec\,4\alpha}$
80	$\frac{sen(3\alpha+\beta)\,sen(3\alpha-\beta)-sen(\alpha+\beta)\,sen(\alpha-\beta)}{sen\,4\alpha\,sen\,2\alpha}=1$