Espressioni goniometriche

indice

Gli esercizi sono proposti in ordine di difficoltà crescente.

nota: in un file così lungo e complesso può accadere che sia presente un errore di diversa natura nonostante gli esercizi siano stati controllati più volte. Saremo grati di ricevere segnalazioni di eventuali refusi o suggerimenti di qualsiasi natura.

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PASSED

1. espressioni con angoli notevoli

1	$sin\,0°\,cos\,90° + 2\,cos\,180°$	-2
2	$5\,tan\,180° + sin\,90° + 2\,cos\,270°$	1
3	$1 - cos\,180° + cos\,360° + 2\,sin\,90°$	5
4	$15cos\,180° + 14\,cos\,0° + cos\,360°$	0
5	$sin\,180° - 4\,cos\,90° + 3\,sin\,270\,°$	-3
6	$4cos\,270° + sin\,90° + sin\,180° - tan\,180°$	1
7	$cos\,180° + sin\,90° + 3\,sin\,180° - tan\,0°$	0
8	$20\,sin\,270° + 12\,cos\,180° - (sin\,270° + 1)$	-32
9	$3\,cos\,0° - 7\,sin\,180°\,cos\,270° + tan\,360°$	3
10	$3\,cos\,0 - 2\,sin\frac{3}{2}\pi - \left(5\,sin\frac{\pi}{2} + 3\,cos\,\pi\right) + 2\,cos\,0$	5
11	$5\,cos\frac{3}{2}\pi - 2\left(sin\,\pi - 4\,cos\frac{\pi}{2} + 3\,cos\,\pi\right) + 2\,cos\frac{3}{2}\pi$	6
12	$sin\,2\pi - \left(4\,sin\frac{\pi}{2} + 3\,cos\,\pi\right) + 3\,\tan\pi + 2\,cos\frac{3}{2}\pi$	-1

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13	$\frac{1}{2}\left(\sin\frac{\pi}{2}+\frac{2}{3}\sin\frac{3}{2}\pi\right)-\frac{1}{3}\cos\pi$	$\frac{1}{2}$
14	$\cos\frac{3}{2}\pi-\frac{2}{5}\left(\sin 2\pi-\sin\frac{\pi}{2}\right)-\frac{1}{10}\cos\pi$	$\frac{1}{2}$
15	$\left(2\sin\frac{3}{2}\pi-5\cos\pi\right)^2-4$	5
16	$\left(\frac{1}{3}\sin\frac{\pi}{2}\right)^2-4\tan 2\pi-\frac{1}{9}\cos 0\cos\frac{3}{2}\pi$	$\frac{1}{9}$
17	$\left(sin\,360°+\frac{1}{2}cos\,180°\right)cot\,90°$	0
18	$\left(tan\,0°-\frac{1}{3}sin\,270°\right)^{\frac{1}{2}}$	$\frac{\sqrt{3}}{3}$
19	$(sec\,180°+csc\,90°)(1+cos\,0°)$	0
20	$\frac{cos\,270°+tan\,180°}{3\,csc\,90°}$	0
21	$sin^2\,90°+cos^2\,360°$	2

22	$\left(\tan\pi + \cot\frac{\pi}{2}\right)\cos 0$	0
23	$\dfrac{\cos\pi + \frac{1}{2}\cos\frac{\pi}{2}}{2\sin\frac{3}{2}\pi}$	$\frac{1}{2}$
24	$\sec\pi\,(\sin^2 2\pi + \cos 0)$	-1
25	$\sec 0\,\sin\pi + \sqrt{5}\sin\frac{\pi}{2}$	$\sqrt{5}$
26	$\dfrac{1+\tan\pi}{\csc\frac{\pi}{2}}$	1
27	$\cos 45° - \cos 30° + \sin 60°$	$\frac{\sqrt{2}}{2}$
28	$\sin 30° - \tan 45° + \cos 60°$	0
29	$\sin 60° - \cos 30° + \tan 30°$	$\frac{\sqrt{3}}{3}$
30	$\tan 60° - 2\sin 45° + 3\tan 30°$	$2\sqrt{3} - \sqrt{2}$

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31	$sin\frac{\pi}{3}cos\,\pi + sin\frac{\pi}{6} + \frac{\sqrt{3}}{2}$	$\frac{1}{2}$
32	$\sqrt{3} - sin\frac{3}{2}\pi - tan\frac{\pi}{4} - tan\frac{\pi}{3}$	0
33	$sin\,45°\,cos\,180° + \frac{\sqrt{2}}{2} + 2\,sin\,60°$	$\sqrt{3}$
34	$sin\,45°\,cos\,180° - cos\,45°\,sin\,270°$	0
35	$2\,cos\,60° - 3\,sin\,180° + 8\,cos\,30° + 3\,tan\,30°$	$1 + 5\sqrt{3}$
36	$6tan\,30° - 3\,tan\,60° + 2cos\,30° + 4\,sin\,60°$	$2\sqrt{3}$
37	$cos\,30° - sin\,60° + 4(cos\,45° + sin\,45°)$	$4\sqrt{2}$
38	$sin\frac{3}{2}\pi\,cos\frac{\pi}{6} + cos\frac{\pi}{2}sin\frac{\pi}{3}$	$-\frac{\sqrt{3}}{2}$
39	$sin\frac{\pi}{3}cos\frac{\pi}{6} + \sqrt{3}\,tan\frac{\pi}{3}$	$\frac{15}{4}$
40	$sin\frac{\pi}{6}cos\frac{\pi}{3} - 4\,cos\frac{\pi}{4}tan\frac{\pi}{3} + 2\sqrt{6}$	$\frac{1}{4}$
41	$\left(4\,sin\,30° + \sqrt{2}\,tan\,45°\right)\left(1 + \frac{1}{3}cos\,30°\right)$	$(2+\sqrt{2})\left(1+\frac{\sqrt{3}}{6}\right)$

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42	$4\cos 45° \sin^2 60°$	$\frac{3}{2}\sqrt{2}$
43	$(\sin 60° + \cot^2 45°)\frac{1}{\sin 30°}$	$\sqrt{3}+2$
44	$1 - \sin 45° \cos 45°$	$\frac{1}{2}$
45	$\tan^2 30° \sin^2 60°$	$\frac{1}{4}$
46	$\left(\sin\frac{\pi}{3} + \cos\frac{\pi}{6}\right)\frac{1}{\tan\frac{\pi}{3}}$	1
47	$\left(\sqrt{3}\cos\frac{\pi}{6} + \sin\frac{\pi}{6}\right)\cot^2\frac{\pi}{4}$	2
48	$\sqrt{2}\cos\frac{\pi}{4} + 2\sqrt{3}\sin\frac{\pi}{3}$	4
49	$\csc\frac{\pi}{4}\frac{1}{\sec\frac{\pi}{3}}$	$\frac{\sqrt{2}}{2}$
50	$\frac{3\tan\frac{\pi}{6} + \tan\frac{\pi}{3}}{\tan\frac{\pi}{4}}$	$2\sqrt{3}$

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letterali

51	$\dfrac{a\,csc^2\,90° + b\,sec^2\,0°}{a\,sin\,270°}$	$-\dfrac{a+b}{a}$
52	$(2a\,cos\,180°)^2 + (2b\,cos\,270°)^2$	$4a^2$
53	$\left(\dfrac{\sqrt{a}\,sec\,0°}{a\,cos\,180°}\right) sin\,270°$	$\dfrac{\sqrt{a}}{a}$
54	$\dfrac{b - cos\,90°}{sin\,270°} - \dfrac{a}{sec\,0°}$	$-(a+b)$
55	$\sqrt[3]{a}\,tan\,0° - \dfrac{b}{cot^2\,90° - 1}$	b
56	$(tan^2\,\pi + a)\,cos\,0 + sin\,\dfrac{3}{2}\pi$	$a - 1$
57	$\dfrac{a\,cos\,\pi + sin\,\dfrac{\pi}{2}}{a\,csc\,\dfrac{3}{2}\pi + b\,sec\,\pi}$	$\dfrac{a-1}{a+b}$
58	$\dfrac{4a\sqrt{3}\,sin\,\dfrac{3}{2}\pi - b\,cos\,\dfrac{\pi}{2}}{a\,csc\,\dfrac{3}{2}\pi}$	$4\sqrt{3}$
59	$b\,cos\,2\pi(sec\,0 + a\,tan\,2\pi)$	b

60	$sec\,2\pi\,tan^2\,\pi + 3a\,sin\,\frac{3}{2}\pi$	$-3a$
61	$\sqrt{2ab(sin^2\,30° + cot\,45°)}$	$\frac{\sqrt{10ab}}{2}$
62	$\frac{3}{2}a\,csc\,60°(b\,cos\,45° - c\,tan\,30°)$	$\frac{\sqrt{6}ab}{2} - ac$
63	$\sqrt{a}\,cot\,45° + \frac{b\,sin\,45°}{1 + c\ tan\,30°}$	$\sqrt{a} + \frac{3}{2}\sqrt{2}\frac{b}{3+\sqrt{3}c}$
64	$\frac{b^2\,csc^2\,60°}{sin\,30°} + \frac{a}{sec^2\,60°}$	$\frac{8}{3}b^2 + \frac{a}{4}$
65	$\frac{2a + sin\,45°}{b\,cos\,60°}cot\,30°$	$\frac{2\sqrt{3}}{b}\left(2a + \frac{\sqrt{2}}{2}\right)$
66	$\frac{\sqrt{a}\,sin\frac{\pi}{3}\sqrt{b}\,tan\frac{\pi}{4}}{c\,csc\frac{\pi}{6}}$	$\frac{\sqrt{3ab}}{4c}$
67	$\left(a\,tan\frac{\pi}{3} - b\,cot\frac{\pi}{6}\right)b\,csc^2\frac{\pi}{4}$	$2\sqrt{3}b(a-b)$
68	$\left(1 - a\,sin\frac{\pi}{4} - b\,sin\frac{\pi}{6}tan^2\frac{\pi}{4}\right)^{\frac{1}{3}}$	$\left(1 - \frac{a\sqrt{2}}{2} - \frac{b}{2}\right)^{\frac{1}{3}}$
69	$\frac{\sqrt{2a}\,csc\frac{\pi}{4}}{1+b\,sec\frac{\pi}{3}}b\,cot\frac{\pi}{4}$	$\frac{2b\sqrt{a}}{1+2b}$

70	$\left(a\cos^2\frac{\pi}{4}+b\sin\frac{\pi}{6}\right)c\csc\frac{\pi}{3}$	$\left(\frac{a+b}{\sqrt{3}}\right)c$

2. espressioni con angoli superiori a 360°

71	$2\sin 450°+\cos 630°$	2
72	$\frac{1}{3}\cos 720°-2\cos 540°$	$\frac{7}{3}$
73	$1-2(\cos 720°-\sin 900°)$	-1
74	$\sin 420°-\cos 390°-\frac{1}{4}\cos 540°$	$\frac{1}{4}$
75	$\sin 450°-\cos 540°-2\sin 630°$	4
76	$\sqrt{2}\sin 405°-\sqrt{3}\cos 390°$	$-\frac{1}{2}$
77	$\sin 630°-\tan 720°+1$	0
78	$\sin 540°\cos 450°-\tan 540°$	0
79	$\sin 6\pi-3\left(\sin\frac{7}{2}\pi-\cos\frac{9}{2}\pi\right)$	3
80	$2\left(\sin\frac{9}{4}\pi-3\cos\frac{5}{2}\pi\right)$	$\sqrt{2}$

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81	$(cos\,360° + 2\,cos\,450°)(1 - tan\,540°)$	1
82	$\sqrt{2}\,sin\,450° + tan^2\,360°$	$\sqrt{2}$
83	$\left(3\,tan\,540° + \frac{2}{5}cot\,450°\right)^{\frac{\sqrt{2}}{2}}$	0
84	$sin\,630° + \frac{cos^2\,540°}{sin\,450°}$	0
85	$sec\,360°\,csc\,450° + \sqrt{3}\,tan\,540°$	1
86	$\left(cos\frac{5}{2}\pi + \frac{1}{2}cos\,3\pi\right)sin\frac{3}{2}\pi$	$\frac{1}{2}$
87	$\frac{tan\,\pi + cot\frac{\pi}{2}}{cos\,2\pi}$	0
88	$\frac{1}{10}sec\,3\pi\,csc\frac{3}{2}\pi$	$\frac{1}{10}$
89	$\sqrt{3}\,sin\frac{5}{2}\pi\frac{1}{3}cos\,2\pi$	$\frac{\sqrt{3}}{3}$
90	$\left(1 - cos\frac{3}{2}\pi\right)(1 + cos\,2\pi)$	2
91	$2\,sin\,390° + \frac{cos^2\,390°}{sin\,405°}$	$\frac{4 + 3\sqrt{2}}{4}$

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92	$\frac{1-\cos 420°}{1+\cos 420°}-\cot^2 390°$	$-\frac{8}{3}$
93	$\tan 405°(1+\cot 390°)-1$	$\sqrt{3}$
94	$\frac{\sec 390°}{1+\tan^2 420°}+\frac{1}{\csc 390°}$	$\frac{\sqrt{3}+3}{6}$
95	$\cot^2 420°-\csc^2 390°+\frac{1}{\sec 405°}$	$\frac{3\sqrt{2}-22}{6}$
96	$\left(\tan\frac{9}{4}\pi+1\right)\sec\frac{7}{3}\pi$	4
97	$\left(\frac{\cos\frac{9}{4}\pi}{1-\sin\frac{13}{6}\pi}\right)-\sin\frac{9}{4}\pi$	$\frac{\sqrt{2}}{2}$
98	$\frac{\cot^2\frac{13}{6}\pi-\cos^2\frac{7}{3}\pi}{\csc\frac{7}{3}\pi}$	$\frac{11}{8}\sqrt{3}$
99	$\cos\frac{9}{4}\pi+\frac{\sin^2\frac{9}{4}\pi}{\cos\frac{7}{3}\pi}$	$\frac{2+\sqrt{2}}{2}$
100	$\frac{\csc\frac{7}{3}\pi}{\sec\frac{7}{3}\pi}\tan\frac{9}{4}\pi$	$\frac{\sqrt{3}}{3}$

	letterali	
101	$a\sqrt{3}(cos^2 360° + cot\, 450°)$	$\sqrt{3}a$
102	$\frac{sec\, 360°}{a}\left(\sqrt{a}\, sin^2 540° - b\, cos^2 540°\right)$	$-\frac{b}{a}$
103	$(sin\, 630° + a^2\, cos\, 630°)^2$	1
104	$\frac{-b\, cos\, 360° - a\, sin\, 630°}{(a+b)\, sec\, 540°}$	$\frac{b-a}{a+b}$
105	$\sqrt{c}\left(\frac{\sqrt{3}}{2}a\ sec\, 540° + \frac{\sqrt{2}}{3}b\, csc\, 450°\right)$	$\frac{\sqrt{2c}}{3}b - \frac{\sqrt{3c}a}{2}$
106	$\left(a\, cos\, 3\pi + sin\frac{5}{2}\pi\right)^2 + \left(cos\frac{5}{2}\pi - \sqrt{b}\, sin\frac{7}{2}\pi\right)^2$	$b + (1-a)^2$
107	$\frac{a^2\, csc\frac{7}{2}\pi + b\, sec\, 2\pi}{a\, cos\, 3\pi - b^3\, sin\, 2\pi}$	$\frac{a^2-b}{a}$
108	$\left(b^4\, tan\, 2\pi + a^6\, csc\frac{7}{2}\pi\right)^2 2ab\, sin\frac{7}{2}\pi$	$-2a^{13}b$
109	$(1 + a\, tan^2\, 3\pi)\sqrt{b}\, sin\frac{5}{2}\pi$	$\sqrt{b}$
110	$sin^2 390° \frac{\sqrt{ab}}{csc\, 420°} + a\, cot\, 405°$	$\frac{\sqrt{3ab}}{8} + a$
111	$\frac{a\, tan\, 420°}{b - cot\, 405°}\ c\, sec^2 390°$	$\frac{4ac\sqrt{3}}{3(b-1)}$

112	$(sin\,420° + a^3\,tan\,405°)\,cot\,405° - 3a^3$	$\frac{\sqrt{3}}{2} - 2a^3$
113	$\left(\sqrt{a}\,tan^2\,420° - 1\right)sec^2\,390° + 1$	$\frac{4}{3}\left(3\sqrt{a} - 1\right) + 1$
114	$\left(\frac{(2b\,tan\,405°)^2}{cos^2\,420°}\right)^{\frac{1}{4}}$	$2\sqrt{b}$
115	$\left(2a\,tan^2\frac{13}{6}\pi - 1\right)b\,cos^2\frac{9}{4}\pi$	$\frac{b}{6}(2a - 3)$
116	$\left(4b\,sin\frac{13}{6}\pi + 6a\,sin^2\frac{9}{4}\pi\right)\frac{1}{csc\frac{7}{3}\pi(a+b)\,cot\frac{13}{6}\pi}$	$\frac{2b + 3a}{2(a+b)}$
117	$\left(\frac{a + sin\frac{9}{4}\pi - b\,cos\frac{9}{4}\pi}{1 + sin^2\frac{9}{4}\pi + b\,cos\frac{9}{4}\pi}\right)^{\frac{1}{2}}$	$\sqrt{\frac{2a + \sqrt{2}(1-b)}{3 + \sqrt{2}b}}$
118	$\frac{\left(b - 3\,cot^2\frac{7}{3}\pi\right)\left(b\,tan\frac{9}{4}\pi + 2\,cos\frac{7}{3}\pi\right)}{2b\,csc\frac{13}{6}\pi - 1}$	$\frac{(b-1)(b+1)}{4b-1}$
119	$\frac{\sqrt{ab}\,cos\frac{13}{6}\pi\left(1 + a\,sin^2\frac{9}{4}\pi\right)^2}{\left(2\,cot^2\frac{9}{4}\pi + \frac{a}{2}sec\frac{7}{3}\pi\right)^2}$	$\frac{\sqrt{3ab}}{8}$

3. espressioni da risolvere con gli angoli associati

120	$sin\,120° + cos\,210°$	0

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121	$cos\,240° - sin\,150°$	-1
122	$sin\,120° + cos\,225°$	$\frac{\sqrt{3}-\sqrt{2}}{2}$
123	$cos\,210° - sin\,330°$	$\frac{1-\sqrt{3}}{2}$
124	$sin\,315° - cos\,240° - sin\,135°$	$\frac{1-2\sqrt{2}}{2}$
125	$-cos\,120° + sin\,300° + cos\,120°$	$-\frac{\sqrt{3}}{2}$
126	$sin\,135° + cos\,225° - tan\,120°$	$\sqrt{3}$
127	$cos\,150°\,sin\,90° + 1 - tan\,225°$	$-\frac{\sqrt{3}}{2}$
128	$sin\,330° + 2\,cos\,300° + sin\,315°\,tan\,180°$	$\frac{1}{2}$
129	$4\left(sin\,150° - \frac{1}{2}\right) + tan\,120°\,sin\,270°$	$\sqrt{3}$
130	$cos(-30°)\,tan(-45°) - sin\,240°$	0
131	$sin(330^{\circ}) \cdot tan(315^{\circ}) + cos(45^{\circ}) \cdot cos(135^{\circ})$	0
132	$2\,sin(150^{\circ}) \cdot sin(30^{\circ}) + 4\,cos(210^{\circ}) \cdot sin(135^{\circ})$	$\frac{1}{2} - \sqrt{6}$

133	$tan\,240°(sin\,210° - sin\,30°) + tan\,135°(sin\,240° - sin\,60°)$	0
134	$sin\frac{11}{6}\pi + cos\frac{\pi}{3} + 5\,tan\frac{7}{4}\pi$	-5
135	$sin\frac{\pi}{2}cos\frac{5}{6}\pi + \frac{\sqrt{3}}{2} + 3tan\frac{7}{6}\pi$	$\sqrt{3}$
136	$sin\frac{5}{4}\pi\,sin\frac{\pi}{4} + sin\frac{2}{3}\pi\,cos\frac{\pi}{6}$	$\frac{1}{4}$
137	$4\,cos\frac{3}{4}\pi\,sin\frac{5}{3}\pi - 6\,sin\frac{7}{4}\pi\,tan\left(-\frac{\pi}{6}\right)$	0
138	$4\,sin\frac{11}{6}\pi - \sqrt{3}\,sin\frac{2}{3}\pi + tan\frac{5}{4}\pi$	$-\frac{5}{2}$
139	$sin\frac{11}{6}\pi \cdot cos\frac{2}{3}\pi + cos\frac{7}{6}\pi \cdot sin\left(-\frac{\pi}{3}\right) - \left(sin\frac{5}{6}\pi\right)^2$	$\frac{3}{4}$
140	$sin\frac{4}{3}\pi \cdot cos\frac{5}{6}\pi + sin\frac{11}{6}\pi \cdot cos\frac{2}{3}\pi - \left[tan\left(-\frac{\pi}{3}\right)\right]^2$	-2
141	$(1 - cos(-45°) + sin(-30°))\,tan^2(-60°)$	$\frac{3(1-\sqrt{2})}{2}$
142	$\frac{sin(-90°) + sec(-45°)}{cos(-60°)}$	$2(\sqrt{2}-1)$
143	$csc(-30°)(cos^2(-90°) + cos(-45°)) + 1$	$1 - \sqrt{2}$

144	$2\,sin(-60°)\,cos(-30°) + tan(-45°)$	$-\frac{5}{2}$
145	$cot(-45°) + \frac{1}{cos(-270°) + csc(-30°)}$	$-\frac{3}{2}$
146	$tan\left(-\frac{\pi}{3}\right)\left(cot\frac{\pi}{4} + cot\left(-\frac{\pi}{6}\right)\right)$	$\sqrt{3}(\sqrt{3}-1)$
147	$sec(-\pi) + tan\frac{\pi}{3} + \frac{1}{csc\frac{\pi}{2}}$	$\sqrt{3}$
148	$\left(1 - sin\left(-\frac{\pi}{2}\right)\right)\left(1 + cos\frac{\pi}{3}\right) - 1$	2
149	$2\left(tan\left(-\frac{\pi}{6}\right) - sin\left(-\frac{\pi}{4}\right)\right)\left(cos\,\pi + cot\left(-\frac{\pi}{6}\right) + 1\right)$	$2-\sqrt{6}$
150	$\frac{1 + cos\left(-\frac{\pi}{3}\right)}{1 - cos\left(-\frac{\pi}{3}\right)} + \frac{1}{sec\left(-\frac{\pi}{3}\right)}$	$\frac{7}{2}$
	letterali	
151	$cos(90° - \alpha) + 2\,sin(360° - \alpha) + sin(180° - \alpha)$	0
152	$tan(180° + \alpha)\,sin(90° - \alpha) + 2sin(180° - \alpha)$	$3\,sin\,\alpha$
153	$cos\,\alpha\,cos(360° - \alpha) - cos(90° - \alpha)\,sin(360° - \alpha)$	1

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154	$cos(270° - \alpha) + tan(360° - \alpha)\, cos(180° - \alpha)$	0
155	$cos(360° - \alpha)\, sin(90° + \alpha) + [sin(180° - \alpha)]^2$	1
156	$\frac{1 + sin(180° - \alpha)\, cos(180° - \alpha)}{sin\, \alpha} + \frac{1}{csc\, \alpha}$	$\frac{2\, sin^2\, \alpha - sin\, \alpha\, cos\, \alpha + cos^2\, \alpha}{sin\, \alpha}$
157	$\left(\frac{1}{tan(180° - \alpha)} - csc\, \alpha\right) cos(180° - \alpha)$	$(cos\, \alpha - 1)\frac{cos\, \alpha}{sin\, \alpha}$
158	$sec(180° - \alpha)\, cos(180° - \alpha) + sin\, \alpha\, csc(180° - \alpha)$	2
159	$\frac{tan^2\, \alpha}{sin^2(180° - \alpha)} + \frac{sec\, \alpha}{csc(180° - \alpha)}$	$\frac{1 + sin\, \alpha\, cos\, \alpha}{cos^2\, \alpha}$
160	$cot(180° - \alpha)(1 - sec^2\, \alpha) + tan(180° - \alpha)(1 + csc^2\, \alpha)$	$\frac{-1}{sin\, \alpha\, cos\, \alpha}$
161	$2\, tan(\pi - \alpha)\, cos^2(\pi - \alpha) + sin\, \alpha\, csc(\pi - \alpha)$	$1 - 2\, sin\, \alpha\, cos\, \alpha$
162	$\frac{1 - cos(\pi - \alpha)}{sin^2(\pi - \alpha)}\, tan^2(\pi - \alpha) - 2\, sec^2(\pi - \alpha)$	$\frac{cos\, \alpha - 1}{cos^2\, \alpha}$
163	$\left(\frac{1}{1 + tan(\pi - \alpha)} - \frac{1}{cot^2(\pi - \alpha)}\right) cos(\pi - \alpha)$	$\frac{cos\, \alpha - 2\, cos^3\, \alpha - sin^3\, \alpha}{cos\, \alpha(cos\, \alpha - sin\, \alpha)}$
164	$sec(\pi - \alpha)(3 - cos(\pi - \alpha)) + cot^2(\pi - \alpha)$	$\frac{2\, cos^3\, \alpha + 3\, cos^2\, \alpha - cos\, \alpha - 3}{cos\, \alpha - cos^3\, \alpha}$
165	$\frac{csc(\pi - \alpha) - cot(-\alpha)}{cos(\pi - \alpha)\, csc\, \alpha}$	$-\frac{1 + cos\, \alpha}{cos\, \alpha}$

166	$\frac{1+sin(180°+\alpha)\,cos(180°+\alpha)}{sin(180°+\alpha)}-\frac{1}{sec(180°+\alpha)}$	$-\,csc\,\alpha$
167	$sec(180°+\alpha)\,csc(180°+\alpha)(tan(180°+\alpha)+cot\,\alpha)$	$sec^2\,\alpha\,csc^2\,\alpha$
168	$\frac{1+cos(180°+\alpha)}{1-cos(180°+\alpha)}-\frac{1+2\,cos(180°+\alpha)}{sin^2(180°+\alpha)}$	$cot^2\,\alpha$
169	$tan\,\alpha(1+cot(180°+\alpha))-1$	$tan\,\alpha$
170	$sin(180°+\alpha)\,cos(180°+\alpha)(tan\,\alpha+cot(180°+\alpha))$	1
171	$\frac{sin^2(\pi+\alpha)-sin(\pi+\alpha)}{cos(\pi+\alpha)}+\frac{1}{cot\,\alpha}$	$-\,sin\,\alpha\,tan\,\alpha$
172	$\frac{cos^2\,\alpha-cos^4(\pi+\alpha)}{1-sin^2(\pi+\alpha)}-sin^2(\pi+\alpha)$	0
173	$\frac{cot(\pi+\alpha)}{cot^2(\pi+\alpha)+1}+cos\,\alpha(tan^2(\pi+\alpha)+1)$	$sin\,\alpha\,cos\,\alpha+sec\,\alpha$
174	$sin(\pi+\alpha)\,cos(\pi+\alpha)\,csc(\pi+\alpha)-\frac{1-sin^2(\pi+\alpha)}{cos\,\alpha}$	$-2\,cos\,\alpha$
175	$\frac{1-sin(\pi+\alpha)-sin^2\,\alpha}{sin(\pi+\alpha)\,cos(\pi+\alpha)}+\frac{cos(\pi+\alpha)}{1-sin^2(\pi+\alpha)}$	$cot\,\alpha$
176	$\frac{1+sec^2(360°-\alpha)\,(sin^2(360°-\alpha)+1)}{2\,sin\,\alpha\,sec^2(360°-\alpha)}$	$cosec\,\alpha$
177	$\frac{sin(360°-\alpha)\,cos(360°-\alpha)}{1-sin^2\,\alpha}+\frac{1}{cot(360°-\alpha)}$	$-2\,tan\,\alpha$

178	$\frac{tan^2(360° - \alpha)}{1 - tan^2(360° - \alpha)} - cot(360° - \alpha)$	$\frac{\cot\alpha + tan^2\alpha - tan\alpha}{1 - tan^2\alpha}$
179	$cos0^2(360° - \alpha) + \frac{1}{cot^2(360° - \alpha) + 1}$	1
180	$\frac{1}{csc^2(360° - \alpha)} + cos(360° - \alpha)\left(sin(360° - \alpha) + \frac{1}{sec\,\alpha}\right)$	$1 - sin\,\alpha\,cos\,\alpha$
181	$\frac{1}{cos(2\pi - \alpha)(1 + tan^2(2\pi - \alpha))} + sec(2\pi - \alpha)$	$(2 + tan^2\,\alpha)\ cos\,\alpha$
182	$-sin(2\pi - \alpha)\,tan\,\alpha + \frac{1}{csc(2\pi - \alpha)}$	$sin\,\alpha\,(tan\,\alpha - 1)$
183	$\frac{sin^2(2\pi - \alpha)}{1 - sin^2\,\alpha} - \frac{1 - cos^2(2\pi - \alpha)}{cos^2\,\alpha}$	0
184	$csc(2\pi - \alpha)(cos^2\,\alpha - 2\,cos^2(2\pi - \alpha) + 1)$	$-sin\,\alpha$
185	$sin(2\pi - \alpha)(cos^2(2\pi - \alpha) - 1)\frac{1}{tan^3(2\pi - \alpha)}$	$-cos^3\,\alpha$

4. espressioni di riepilogo con angoli notevoli, angoli superiori a 360° e angoli associati

186	$-2\sin 90° - 5\sin 180° + 3\cos 180°$	-5
187	$4\sin 135°\cos 0° - 2\tan 60° - \sqrt{3}\tan 135°$	$2\sqrt{2} - \sqrt{3}$
188	$\sin 60°\sin 120° + \tan 420°\sin 630°$	$\frac{3}{4} - \sqrt{3}$
189	$\sin 270°\tan 30° + 5\sin 270°\tan 0° + \frac{1}{2}\sin 30° + 2\cos 180°$	$-\frac{\sqrt{3}}{3} - \frac{7}{4}$

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190	$5\sin 90° + 2\sin 270° - 3\tan 180°$	3
191	$\cos 270° \tan 30° - 4\sin 90° \tan 360° + \frac{1}{4}\sin 30° - \frac{1}{2}\cos 180°$	$\frac{5}{8}$
192	$\sin 45° \cos 0° - 3\tan 30° + \sqrt{3}\tan 45°$	$\frac{\sqrt{2}}{2}$
193	$\cos 30° \sin 150° - \tan 225° \sin 630°$	$\frac{\sqrt{3}}{4} + 1$
194	$\cos 540° + 4\sin 45° \tan 405°$	$2\sqrt{2} - 1$
195	$(cos\ 540° cos\ 90° - 1)\ sin\ 630°$	1
196	$4\ cos\frac{9}{2}\pi - \sqrt{3}\ cos\ 5\pi - 2\ cos\frac{13}{6}\pi$	0
197	$cos\ \pi - \frac{3}{4} sin\frac{\pi}{6} + \frac{1}{4} cos\frac{3}{2}\pi\ tan\frac{\pi}{4}$	$-\frac{11}{8}$
198	$3\left(tan\ 30° - \frac{1}{3} tan\ 60°\right) + 4\ sin\ 45°\ cos\ 45°$	4
199	$4\ tan\frac{\pi}{4} - sin\frac{3}{2}\pi + 4\left(sin\frac{\pi}{6} - 2\ sin\frac{\pi}{4}\right) + \left(tan\frac{\pi}{3}\right)^2 - 10$	$-4\sqrt{2}$
200	$\left(7\ cos\ 0 - 2\ sin\ \pi - 5\ sin\frac{3}{2}\pi\ cos\ \pi\right)^2 - 4\ sin\ \pi$	4
201	$4\ sin\frac{9}{4}\pi - \left(2cos\frac{\pi}{4}\right)^2 + cos\frac{5}{2}\pi$	$2\sqrt{2} - 2$

202	$\sqrt{3}sin(-30°) - 2cos\,240°\,sin\,120° - \frac{1}{3}tan\,300°$	$\frac{\sqrt{3}}{3}$
203	$cos\frac{\pi}{6}tan\left(-\frac{\pi}{4}\right) + 2\left(sin\frac{3}{4}\pi\right)^2 + cos\frac{\pi}{2}sin\frac{9}{4}\pi$	$-\frac{\sqrt{3}}{2} + 1$
204	$\sqrt{6}\,sin\frac{3}{2}\pi + cos\left(-\frac{\pi}{6}\right)cos\frac{5}{4}\pi + \sqrt{2}\,tan\frac{2}{3}\pi$	$\frac{9}{4}\sqrt{6}$
205	$sin^2(180° - \alpha) - 1 + cos(360° - \alpha) + cos^2(-\alpha)$	$cos\,\alpha$
206	$2\,sin^2(180° + \alpha) + cos^4(180° - \alpha)\,tan^2(180° + \alpha) - sin^4(180° - \alpha)$	$sin^2\,\alpha(3 - 2\,sin^2\,\alpha)$
207	$\frac{a\,cos(-45°) - tan(-30°)}{-\frac{3}{2}b\,csc(-30°)}$	$\frac{3a\sqrt{2} + 2\sqrt{3}}{18b}$
208	$sec(360° - \alpha)(sin(360° - \alpha)\,cos(360° - \alpha) - 1) + \frac{tan\,\alpha}{sin(180° - \alpha)}$	$-\,sin\,\alpha$
209	$\frac{1 - cos^2(360° - \alpha)}{sin(180° + \alpha)\,cos(360° - \alpha)} + \frac{1}{sin\,\alpha\,cos(180° + \alpha)}$	$-\frac{sin^2\,\alpha + 1}{sin\,\alpha\,cos\,\alpha}$
210	$\left(\frac{cot^2(-30°)}{a\,sin(-30°)}\frac{b^2\,cos(-30°)}{tan(-30°)}\right)^{\frac{1}{2}}$	$\frac{3b}{\sqrt{a}}$
211	$csc(360° - \alpha) - cos(180° + \alpha)\,cot(180° - \alpha)$	$\frac{sin^2\,\alpha - 2}{sin\,\alpha}$

212	$cos^2(\pi-\alpha)\,tan\,\alpha - cos^2(-\alpha)\,cot(\pi-\alpha)$	$cot\,\alpha$
213	$\frac{\sqrt{a}}{2}cot^2(-45°) + \frac{\sqrt{b}}{a}\frac{sin(-45°)}{1+cos(-60°)}$	$\frac{\sqrt{a}}{2} - \frac{\sqrt{2b}}{3a}$
214	$a\ \ cos^2(-30°)\,(4b^2\,cos(-45°)+1)$	$\frac{3}{4}a(1+2\sqrt{2}b^2)$
215	$cos\,\alpha - \frac{cos^2(\pi+\alpha) - sin^2(2\pi-\alpha)}{sin(2\pi-\alpha) - cos(2\pi-\alpha)}$	$2\,cos\,\alpha - sin\,\alpha$
216	$\frac{3b\left(tan\left(-\frac{\pi}{3}\right) - cot\left(-\frac{\pi}{3}\right)\right)}{2a\left(tan\left(-\frac{\pi}{6}\right) + cot\frac{\pi}{6}\right)}$	$-\frac{3}{2}\frac{b}{a}$
217	$sin(\pi+\alpha)\,csc(2\pi-\alpha)(tan(-\alpha) + cot\,\alpha)$	$\frac{1-2\,sin^2\alpha}{sin\,\alpha\,cos\,\alpha}$
218	$\frac{(b+c)\,sec(-45°) + (b-c)\,csc(-45°)}{tan(-60°)\,cot(-30°)}$	$\frac{2\sqrt{2}c}{3}$
219	$cos(2\pi+\alpha)\,tan(\pi-\alpha) + sin(\pi-\alpha)\,cot(2\pi+\alpha)$	$cos\,\alpha - sin\,\alpha$
220	$b^3\,cos\left(-\frac{\pi}{4}\right)\left(1+tan^2\left(\frac{\pi}{4}\right)\right) + \sqrt[3]{b}\,cot^2\left(-\frac{\pi}{3}\right)$	$\sqrt{2}b^3 + \frac{1}{3}\sqrt[3]{b}$

221	$\frac{2a+\sin\left(-\frac{\pi}{3}\right)}{\cos^2\left(-\frac{\pi}{3}\right)}+\frac{3b-\cos\left(-\frac{\pi}{6}\right)}{\sin^2\left(-\frac{\pi}{6}\right)}$	$4\left(2a-\sqrt{3}+3b\right)$
222	$\csc(\pi-\alpha)(1-\sin^2(\pi+\alpha))$	$\cot\alpha\cos\alpha$
223	$\frac{3}{2}\sqrt{a}\tan^2\left(-\frac{\pi}{4}\right)\frac{\sec\left(-\frac{\pi}{4}\right)}{\csc\left(-\frac{\pi}{4}\right)}\frac{\sqrt{a}}{a}$	$-\frac{3}{2}$
224	$\left(2a\sin\left(-\frac{\pi}{3}\right)-2b\cos\left(-\frac{\pi}{3}\right)\right)^2+\frac{\sqrt{b}}{b}$	$\left(a\sqrt{3}+b\right)^2+\frac{\sqrt{b}}{b}$
	esercizi più impegnativi	
225	$\sin^2 15°$	$\frac{2-\sqrt{3}}{4}$
226	$\cos 75°\cos 15°$	$\frac{1}{4}$
227	$\frac{\tan^2 22{,}5°}{4}+\sin 45°$	$\frac{3}{4}$
228	$\frac{\cos 72°}{\sin^2 30°}+\tan 45°$	$\sqrt{5}$
229	$\tan 7{,}5°\tan 67{,}5°-3\tan 30°$	$-\sqrt{2}$
230	$\tan 15°+\frac{\tan 21°+\tan 39°}{1-\tan 21°\tan 39°}$	2
231	$\sin 18°\tan 9°$	$1-\frac{\sqrt{10+2\sqrt{5}}}{4}$

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232	$\frac{\sin 72° \sin 36°}{\sin 18°} + \tan^2 72°$	$\frac{25 + 9\sqrt{5}}{4}$
233	$(\sin 18° \tan 9°)^2 + 2 \cos 18°$	$\frac{13 + \sqrt{5}}{8}$
234	$(\sin 162° + \sin 126°) \csc 60°$	$\frac{\sqrt{15}}{3}$
235	$\cos^2 54° \sec^2 36°$	$5 - 2\sqrt{5}$
236	$(2 \sin^2 67{,}5° - \cos 45°) \cot 22{,}5°$	$1 + \sqrt{2}$
237	$\tan 37{,}5° + \sqrt{2} \tan 67{,}5°$	$\sqrt{3} + \sqrt{6}$
238	$\cos 85° \cos 13° + \sin 85° \sin 13°$	$\frac{\sqrt{5} - 1}{4}$
239	$\frac{1}{2}(\sqrt{3} \cos 6° - \sin 6°)$	$\frac{\sqrt{5} + 1}{4}$
240	$\frac{\sqrt{3} - \tan 24°}{1 + \sqrt{3} \tan 24°}$	$\sqrt{5 - 2\sqrt{5}}$
241	$\frac{(\tan 22° - \tan 5°) \cot 17° \cot 5°}{\cot 5° + \tan 22°}$	1
242	$16 \sin^5 18° - 20 \sin^3 18° + 5 \sin 18°$	1
243	$\cos 9° - \sin 9°$	$\frac{\sqrt{5 - \sqrt{5}}}{2}$

244	$8\cos^3 20° - 6\cos 20°$	1

5. espressioni risolubili con le formule di addizione e sottrazione

245	$\sin(\alpha+\beta)\sin(\alpha-\beta)$	$\sin^2\alpha - \sin^2\beta$
246	$\cos(\alpha+\beta)\cos(\alpha-\beta)$	$\cos^2\alpha - \sin^2\beta$
247	$\cos(\alpha-\beta)\cos\alpha + \sin(\alpha-\beta)\sin\alpha$	$\cos\beta$
248	$\dfrac{\cos(\alpha+\beta)+\cos(\alpha-\beta)}{\sin(\alpha+\beta)+\sin(\alpha-\beta)}$	$\cot\alpha$
249	$\dfrac{\cos(\alpha-\beta)}{\sin\beta\cos\alpha}$	$\tan\alpha + \cot\beta$
250	$\tan(\alpha+\beta)\tan(\alpha-\beta)$	$\dfrac{\tan^2\alpha - \tan^2\beta}{1-\tan^2\alpha\tan^2\beta}$
251	$\dfrac{\tan(\alpha+\beta)}{\cot(\alpha-\beta)}$	$\dfrac{\tan\alpha\cot\beta - \tan\beta\cot\alpha}{\cot\alpha\cot\beta - \tan\alpha\tan\beta}$

6. espressioni risolubili con le formule di duplicazione e bisezione

252	$\sin^2 2\alpha + \cos 2\alpha + 4\sin^4\alpha$	$2\sin^2\alpha + 1$
253	$(1+\cos 2\alpha)\tan\alpha$	$\sin 2\alpha$
254	$\sin 2\alpha(\tan\alpha + \cot\alpha)$	2

255	$\frac{1-\cos 2\alpha}{2}(\cot^2\alpha-1)$	$\cos 2\alpha$
256	$\frac{1}{2}\tan 2\alpha(1+\tan\alpha)$	$\frac{\tan\alpha}{1-\tan\alpha}$
257	$2\tan^2\alpha\sin^2\frac{\alpha}{2}+\tan\alpha\sin\alpha$	$\tan^2\alpha$
258	$\frac{1-\cos\alpha}{2}\left(\cot^2\frac{\alpha}{2}-1\right)$	$\cos\alpha$
259	$\frac{1}{1-\tan^2\frac{\alpha}{2}}-\frac{1}{1-\cot^2\frac{\alpha}{2}}$	$\frac{1}{\cos\alpha}$

7. espressioni risolubili con le formule di prostaferesi e Werner

260	$\cos(60°+\alpha)+\cos(60°-\alpha)$	$\cos\alpha$
261	$\cot(45°+\alpha)+\cot(45°-\alpha)$	$\frac{2}{\cos 2\alpha}$
262	$\tan 7\alpha+\tan 3\alpha$	$\frac{\sin 10\alpha}{\cos 7\alpha\cos 3\alpha}$
263	$\sin\alpha\sin\beta-\frac{1}{2}\cos(\alpha-\beta)$	$-\frac{1}{2}\cos(\alpha+\beta)$
264	$\frac{\sin\alpha-\sin\beta}{\cos\alpha+\cos\beta}$	$\tan\frac{\alpha-\beta}{2}$
265	$\sin\left(\frac{\pi}{3}+\alpha\right)+\sin\left(\frac{\pi}{3}-\alpha\right)$	$\sqrt{3}\cos\alpha$

266	$tan\left(\frac{\pi}{4}+\alpha\right)-tan\left(\frac{\pi}{4}-\alpha\right)$	$2\,tan\,2\alpha$
267	$\frac{sin\left(\frac{\pi}{3}+\alpha\right)+cos\left(\frac{5}{6}\pi-\alpha\right)}{cos\left(\frac{\pi}{3}+\alpha\right)+sin\left(\frac{5}{6}\pi-\alpha\right)}$	$tan\,\alpha$
268	$2\,sin\,\alpha\,cos\,3\alpha$	$sin\,4\alpha-sin\,2\alpha$
269	$\frac{cos\left(\alpha-\frac{\pi}{4}\right)sin\left(\frac{3}{4}\pi+\alpha\right)}{cos\,\alpha+sin\,\alpha}$	$\frac{1}{2}(cos\,\alpha-sin\alpha)$

8. espressioni di riepilogo con le formule goniometriche

270	$\frac{1}{2}sin\,2(\alpha+\beta)$	$sin\,\alpha\,cos\,\alpha\,cos\,2\beta+$ $+sin\,\beta\,cos\,\beta\,cos\,2\alpha$
271	$cos^4\,\alpha-sin^4\,\alpha$	$cos\,2\alpha$
272	$cos^4\frac{\alpha}{2}-sin^4\frac{\alpha}{2}$	$cos\,\alpha$
273	$\frac{cos\,8\alpha+cos\,\alpha}{cos\,8\alpha-cos\,\alpha}$	$-cot\frac{9}{2}\alpha\,cot\frac{7}{2}\alpha$
274	$\frac{sin(3\alpha+\beta)\,sin(3\alpha-\beta)-sin(\alpha+\beta)\,sin(\alpha-\beta)}{sin\,4\alpha\,sin\,2\alpha}$	1
275	$2\,tan\,\alpha\,sin^2\frac{\alpha}{2}+sin\,\alpha$	$tan\,\alpha$
276	$sin\,\alpha\,cos(\alpha+\beta)-cos\,\alpha\,sin(\alpha+\beta)$	$cos\left(\frac{\pi}{2}+\beta\right)$

277	$\frac{sin^2\alpha - sin^2\beta}{cos^2\alpha - cos^2\beta}$	-1
278	$\frac{2\,sin\,3\alpha\,sin\,8\alpha}{sin\,5\alpha + sin\,8\alpha}$	$\frac{cos\,5\alpha - cos\,11\alpha}{2\,sin\frac{13}{2}\alpha\,cos\frac{3}{2}\alpha}$
279	$\frac{2tan\left(\frac{\pi}{2}-\alpha\right)}{1+[cot(\pi-\alpha)]^2} - \left[cos\left(\frac{\pi}{2}-\alpha\right) + sin\left(\frac{\pi}{2}-\alpha\right)\right]$	$sin\,2\alpha - sin\,\alpha - cos\,\alpha$

9. espressioni con funzioni goniometriche inverse

280	$tan\left(arccos\left(-\frac{\sqrt{2}}{2}\right)\right)$	-1
281	$tan\left(arcsin\frac{\sqrt{3}}{2}\right)$	$\sqrt{3}$
282	$\frac{3}{4} + cot\left(arcsin\frac{\sqrt{2}}{2}\right) - \frac{1}{2}cos\,(arccot\,0)$	$\frac{7}{4}$
283	$\sqrt{2}sin\left(arccos\frac{\sqrt{2}}{2}\right) - \frac{1}{2} + \frac{3}{2}tan\,(arccot\sqrt{3})$	$\frac{1+\sqrt{3}}{2}$
284	$sin(arctan\,1)$	$\frac{\sqrt{2}}{2}$
285	$csc\left(arctan\left(-\frac{\sqrt{3}}{3}\right)\right)$	-2
286	$cos\left(arccot(-\sqrt{3})\right)$	$-\frac{\sqrt{3}}{2}$

287	$sin(arccos\,1)$	0
288	$sin\left(arctan\,\sqrt{3}\right)$	$\frac{\sqrt{3}}{2}$

10. espressioni da ricondurre ad altre equivalenti prive di funzioni goniometriche inverse

289	$cos(arccos\,x)$	$x\,,\ x \in [-1,1]$
290	$arccos(cos\,x)$ $x \in [-\pi,\pi]$	$\lvert x\rvert$
291	$cos(arcsin\,x)$	$\sqrt{1-x^2}$
292	$cos(arcsin\,x - arccos\,x)$	$2x\sqrt{1-x^2}$
293	$sin(3\,arcsin\,x)$	$x(3-4x^2)\,,\ x \in [-1,1]$
294	$tan(arcsin\,x) + tan(arccos\,x)$	$\frac{1}{x\sqrt{1-x^2}}$
295	$tan(arcsin\,x + arccos\,x)$	*impossibile*
296	$sin(2\,arccos\,x - 2\,arcsin\,x)$	$4x(1-2x^2)\sqrt{1-x^2}$
297	$\frac{cos(arcsin\,x)}{sin(arccos\,x)}$	$1\,,\ x \in [-1,1]$

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298	$\tan\frac{\pi}{4}-\sin\left(\arcsin x+\frac{\pi}{2}\right)\cos\left(\arccos x-\frac{\pi}{2}\right)$	$x^2\ ,\ x\in[-1,1]$
299	$\frac{\cos(\arcsin x^2)-\cos^2(\arcsin x)}{\sin(\arccos x)}$	$\sqrt{1+x^2}-\sqrt{1-x^2}\ \wedge$ $x\neq\pm1$
300	$\sin\left(\arctan\sqrt{x}\right)+\sin\left(\arctan\frac{1}{\sqrt{x}}\right)$	$\frac{\sqrt{x}+1}{\sqrt{x+1}}$
301	$\sin(\arcsin x+\arccos x^2+\arctan x)$	$1-\frac{x^2(\sqrt{1-x^2}+1)(\sqrt{1+x^2}-x)}{\sqrt{1+x^2}}$
302	$2\sin(\arccos(\sin x))\cos(\arcsin(\cos x))$	$\lvert sen\,2x\rvert$
303	$\sin(\arccos(\sin(\arccos x)))-\sin(\arcsin(\cos(\arccos x)))$	$\lvert x\rvert-x\ ,\ x\in[-1,1]$
304	$\frac{\sin^2(\arctan\sqrt{x})}{\sin^2(\arccos\sqrt{x})}-x$	$\frac{x^3}{1-x^2}\ ,\ x\in[0,1)$
305	$\cos^2\left(\arctan\frac{1}{\sqrt{x}}\right)\sin^2\left(\arctan\frac{1}{\sqrt{x}}\right)$	$\frac{x}{(x+1)^2}$
306	$1+\tan^2(\arcsin(1-\sqrt{x}))$	$\frac{1}{2\sqrt{x}-x}\ ,\ x\in(0,4)$
307	$\cos\left(\arctan x+\arctan\frac{1}{x}\right)+\sin\left(\arctan x+\arctan\frac{1}{x}\right)$	$\frac{x}{\lvert x\rvert}$
308	$\sqrt{\sin\left(3\arctan\sqrt{x}+3\arctan\frac{1}{\sqrt{x}}\right)}$	*impossibile*