Espressioni ed equazioni in cui compaiono funzioni inverse

ricondurre le seguenti espressioni ad altre equivalenti prive di funzioni trigonometriche inverse

1	$cos(arccos\, x)$	$x\ ,\ x \in [-1,1]$
2	$arccos(cos\, x)\ \ ,\ \ x \in [-\pi,\pi]$	$\lvert x\rvert$
3	$cos(arcsen\, x)$	$\sqrt{1-x^2}$
4	$cos(arcsen\, x - arccos\, x)$	$2x\sqrt{1-x^2}$
5	$sen(3\, arcsen\, x)$	$x(3-4x^2)\ ,\ x \in [-1,1]$
6	$tg(arcsen\, x) + tg(arccos\, x)$	$\frac{1}{x\sqrt{1-x^2}}$
7	$tg(arcsen\, x + arccos\, x)$	*impossibile*
8	$sen(2\, arccos\, x - 2\, arcsen\, x)$	$4x(1-2x^2)\sqrt{1-x^2}$
9	$\frac{cos\,(arcsen\ x)}{sen\,(arccos\ x)}$	$1\ ,\ x \in [-1,1]$
10	$tg\frac{\pi}{4} - sen\left(arcsen x + \frac{\pi}{2}\right) cos\left(arccos x - \frac{\pi}{2}\right)$	$x^2\ ,\ x \in [-1,1]$
11	$\frac{cos\,(arcsen\ x^2) - cos^2(arcsen\ x)}{sen\,(arccos\ x)}$	$\sqrt{1+x^2} - \sqrt{1-x^2}$ *con* $x \neq \pm 1$
12	$sen\left(arctg\sqrt{x}\right) + sen\left(arctg\frac{1}{\sqrt{x}}\right)$	$\frac{\sqrt{x}+1}{\sqrt{x+1}}$
13	$sen(arcsen\, x + arccos\, x^2 + arctg\, x)$	$1 - \frac{x^2\left(\sqrt{1-x^2}+1\right)\left(\sqrt{1+x^2}-x\right)}{\sqrt{1+x^2}}$
14	$2\, sen(arccos(sen\, x))\, cos(arcsen(cos\, x))$	$\lvert \text{sen}\, 2x\rvert$
15	$sen(arccos(sen(arccos x))) - sen(arcsen(cos(arccos x)))$	$\lvert x\rvert - x\ ,\ x \in [-1,1]$
16	$\frac{sen^2(arctg\ \sqrt{x})}{sen^2(arccos\ \sqrt{x})} - x$	$\frac{x^3}{1-x^2}\ ,\ x \in [0,1)$
17	$cos^2\left(arctg\frac{1}{\sqrt{x}}\right) sen^2\left(arctg\frac{1}{\sqrt{x}}\right)$	$\frac{x}{(x+1)^2}$
18	$1 + tg^2\left(arcsen\left(1-\sqrt{x}\right)\right)$	$\frac{1}{2\sqrt{x}-x}\ ,\ x \in (0,4)$
19	$cos\left(arctgx + arctg\frac{1}{x}\right) + sen\left(arctgx + arctg\frac{1}{x}\right)$	$\frac{x}{\lvert x\rvert}$
20	$\sqrt{sen\left(3\, arctg\sqrt{x} + 3\, arctg\frac{1}{\sqrt{x}}\right)}$	*impossibile*

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trovare i valori di x che verificano le seguenti equazioni con funzioni trigonometriche inverse:

21	$sen\left(arccos\left(x+\frac{\pi}{4}\right)\right)=cos\frac{\pi}{3}$	$-\frac{\pi \pm 2\sqrt{3}}{4}$
22	$cos\left(arcsen\,x+\frac{\pi}{3}\right)=x$	$\frac{\sqrt{3}-1}{2\sqrt{2}}$
23	$tg(arcsen\,x-arccos\,x)=\frac{1}{x}$	*impossibile* *[come mai?]*
24	$tg\left(arcsin\sqrt{x}\right)=sen(arctg\,x)$	0
25	$sen\left(arcsen\,x+\frac{\pi}{6}\right)=\frac{x\ tg\frac{\pi}{4}}{2}$	$-\frac{1}{\sqrt{5-2\sqrt{3}}}$
26	$cos\left(\frac{\pi}{4}+arctg\sqrt{x}\right)=1$	*impossibile*
27	$tg(arcsen\,5x)\,tg(arccos\,5x)=1$	$x\in\left[-\frac{1}{5},\frac{1}{5}\right]$
28	$sen(2\,arccos\,x)=cos(2\,arcsen\,x)$	$-\frac{\sqrt{2+\sqrt{2}}}{2}$, $\frac{\sqrt{2-\sqrt{2}}}{2}$
29	$tg\left(arccos(sen^2x)+\frac{\pi}{2}\right)=-sen^2x$	$k\pi,\ k\in\mathbb{Z}$
30	$sen(arccos(1-x)+arcsen(1+x))=k,\qquad k\in\mathbb{R}$	*impossibile*
31	$sen\left(arccos\left(x-\frac{1}{2}\right)-arcsen\left(x+\frac{1}{2}\right)\right)=\frac{3}{4}$	$\pm\frac{\sqrt{70}}{28}$
32	$sen(arctg(sen\,x)-arccos(sen\,x))=\frac{1}{\sqrt{1+sen^2x}}$	$\frac{\pi}{2}+k\pi,\ k\in\mathbb{Z}$
33	$cos\left(arcsen\sqrt{1+x}+\frac{\pi}{4}\right)=\frac{\sqrt{-2x}}{2}$	-1
34	$x\,tg(2\,arctg\,x)+x^2=-1-\frac{5}{2\sqrt{3}}$	$\pm\frac{1+\sqrt{3}}{\sqrt{2}}$
35	$sen\left(2\,arccos\sqrt{x-2}\right)=tan\frac{x}{2}sen\,x+cos\,x$	$\frac{5}{2}$
36	$cos\left(\frac{\pi}{3}+2\,arcsen\frac{x}{13}\right)=\sqrt{1-\frac{x^2}{169}}-\frac{x^2}{338}$	$3-4\sqrt{3}$
37	$tg(arctgx+arctg3x)=2\,tg(arctg\,x+arctg\,2x)$	0 , $\pm\frac{\sqrt{5}}{5}$
38	$2\,sen(arcsen\,x+arcsen\,3x)=3(arcsen\,x+arcsen\,2x)$	0
39	$6\,cos(arccos\,2x+arccos\,5x)=5\,cos(arccos\,3x+arccos\,4x)$	$\pm\frac{\sqrt{4609}}{419}$
40	$tg^2(arcsen\,x)+tg^2(arccos\,x)=3$	$\pm\frac{\sqrt{5-\sqrt{5}}}{\sqrt{10}}$, $\pm\frac{\sqrt{5+\sqrt{5}}}{\sqrt{10}}$