

semplifica i seguenti radicali (in $R_0^+$ )		
1	$\sqrt{a^4 b^8 c^6}$ ; $\sqrt[3]{a^9 b^6 t^{12}}$	$a^2 b^4 c^3$ ; $a^3 b^2 t^4$
2	$\sqrt[24]{x^4 z^{12} y^8}$ $\sqrt[10]{3^6 \cdot 2^4 \cdot 5^2}$	$\sqrt[6]{xz^3 y^2}$ ; $\sqrt[5]{3^2 \cdot 2^2 \cdot 5}$
3	$\sqrt[12]{64 a^6 b^6}$ $\sqrt[7]{x^{14} y^{42} z^{28}}$	$\sqrt{2ab}$ ; $x^2 y^6 z^4$
4	$\sqrt[4]{9a^2 - 12ab + 4b^2}$	$\sqrt{3a - 2b}$
5	$\sqrt[6]{4x^4 - 20xy^3 - 20x^3y + 33x^2y^2 + 4y^4}$	$\sqrt[3]{(x - 2y)(y - 2x)}$
6	$\sqrt[5a]{x^{25a^2} y^{10a^3} (x - y)^{15a}}$	$x^{5a} y^{2a^2} (x - y)^3$
7	$\sqrt[8]{\frac{16x^{20} y^{16} (x - y)^8}{81(a - c)^4}}$	$\sqrt{\frac{2x^5 y^4 (x - y)^2}{3(a - c)}}$
8	$\sqrt{x^2 - y^2} \sqrt{\frac{a^{2xy - y^2}}{b^{x - y} a^{x^2}}}$	$\sqrt[x + y]{\frac{1}{ba^{x - y}}}$
9	$\sqrt[9]{\frac{(x + 1)^3}{8a^6 b^3}}$	$\sqrt[3]{\frac{x + 1}{2a^2 b}}$
10	$\sqrt[n]{\frac{(a + 2b)^{2n^2}}{(a - b)^{3n} c^{n^2 + n}}}$	$\frac{(a + 2b)^{2n}}{(a - b)^3 c^{n + 1}}$
11	$\sqrt[33]{\frac{(x + y)^{23} (x - y)^{12}}{(x^2 - y^2)}}$	$\sqrt[3]{(x + y)^2 (x - y)}$

riduci allo stesso indice i seguenti gruppo di radicali (in  $R_0^+$ )

12	$\sqrt[3]{16}$ ; $\sqrt[2]{27}$ ; $\sqrt[4]{125}$	$\sqrt[12]{2^{16}}$ ; $\sqrt[12]{3^{18}}$ ; $\sqrt[12]{5^9}$
13	$\sqrt[5]{ab}$ $\sqrt[10]{a^3 b^2}$ $\sqrt[15]{a^2 b^3}$	$\sqrt[30]{a^6 b^6}$ ; $\sqrt[30]{a^9 b^6}$ ; $\sqrt[30]{a^4 b^6}$
14	$\sqrt[2]{a^3 + b^2}$ $\sqrt[12]{a^2 - b^2}$ $\sqrt[6]{a^2 - ab}$	$\sqrt[12]{(a^3 + b^2)^6}$ ; $\sqrt[12]{a^2 - b^2}$ ; $\sqrt[12]{(a^2 - ab)^2}$

15	$\sqrt[n]{\frac{x+y}{xy^2}}$	$\sqrt[2n]{\frac{x^2+y^2}{xy}}$	$\sqrt[3n]{\frac{1+x}{x^2y}}$	$\sqrt[6n]{\frac{(x+y)^6}{x^6y^{12}}}$ ; $\sqrt[6n]{\frac{(x^2+y^2)^3}{x^3y^3}}$ ; $\sqrt[6n]{\frac{(1+x)^2}{x^4y^2}}$
16	$\sqrt[8]{\frac{(1-a)^2}{1+a}}$	$\sqrt[4]{\frac{a+1}{(a-1)^2}}$	$\sqrt[6]{\frac{(a-1)^2}{(a+1)^3}}$	$\sqrt[24]{\frac{(1-a)^6}{(1+a)^3}}$ ; $\sqrt[24]{\frac{(1+a)^6}{(a-1)^{12}}}$ ; $\sqrt[24]{\frac{(a-1)^8}{(a+1)^{12}}}$
<b>trasporta i fattori fuori dal segno di radice (in <math>R_0^+</math>)</b>				
17	$\sqrt[3]{a^4b^5c}$	$\sqrt[2]{\frac{8}{81}}$		$ab^3\sqrt{ab^2c}$ ; $\frac{2}{9}\sqrt{2}$
18	$\sqrt{4x^4-4x^2}$	$\sqrt[5]{x^6y^8z^{11}t^{23}}$		$2x^2\sqrt{x^2-1}$ ; $xyz^2t^4\sqrt[5]{xy^3zt^3}$
19	$\sqrt[3]{\frac{(e^3+3e^2+3e+1)i^7}{c^4t^2}}$	$\sqrt[4]{\frac{64}{a^5b^6}-\frac{16}{a^7b^4}}$		$\frac{(e+1)i^2}{c}\sqrt[3]{\frac{i}{ct^2}}$ ; $\frac{2}{ab}\sqrt[4]{\frac{4a^2-b^2}{a^3b^2}}$
20	$\frac{1}{2}\sqrt[4]{\frac{x^{36}y^{71}z^{25}}{64a^{19}b^{13}c^{50}}}$	$\sqrt[5]{\frac{n^3m^{10}l^8}{(l-1)^{20}}}$		$\frac{x^9y^{17}z^6}{4a^4b^3c^{12}}\sqrt[4]{\frac{y^3z}{4a^3bc^2}}$ ; $\frac{m^2l}{(l-1)^4}\sqrt[5]{n^3l^3}$
21	$\sqrt[3]{243x^7y^6-243x^8y^5}$			$3x^2y^3\sqrt[3]{9xy^2(y-x)}$
22	$\sqrt[2]{\frac{(a-b)^6a^8b^9}{32(2a-3b)^7}}$			$\frac{(a-b)^3a^4b^4}{4(2a-3b)^3}\sqrt{\frac{b}{2(2a-b)}}$
23	$\sqrt{\frac{a^3x^2+a^3y^2-2a^3xy}{4b^5x^2+4b^5y^2+8b^5xy}}$			$\frac{a(x-y)}{2b^2(x+y)}\sqrt{\frac{a}{b}}$
24	$\sqrt[t+1]{\frac{w^tk^{2t+2}j^{3t+3}}{5t+2r^{t^2-1}}}$			$\frac{k^2j^3}{5r^{t-1}}\sqrt[t+1]{\frac{w^t}{5}}$
25	$\sqrt[n]{2^{n+2}b^{n+1}a^{3n}}$			$2a^3b^n\sqrt[n]{4ab}$
26	$\sqrt[5]{\frac{128a^{12}b^9}{c^{15}d^{17}}}$			$\frac{2a^2b^5}{c^3d^3}\sqrt[5]{\frac{4a^2b^4}{d^2}}$

## trasporta i fattori sotto il segno di radice

27	$\left(\frac{3}{2} - 1\right) \sqrt{\frac{8}{5}}$	$\frac{2}{3} \sqrt[3]{\frac{2}{3}}$	$\sqrt{\frac{2}{5}}; \sqrt[3]{\frac{16}{81}}$
28	$x^2 y^3 \sqrt{x^3 y^2}$	$\frac{a^2 b}{c^3} \sqrt[4]{\frac{3a^2 c^{11}}{b^4}}$	$\sqrt{x^7 y^8}; \sqrt[4]{\frac{3a^{10}}{c}}$
29	$\frac{1}{(4-x)(y-3)} \sqrt{(x-4)(y-3)}$	$a^{2n} b^{n+1} c \sqrt[3]{\frac{a^6 c^n}{b^{3n}}}$	$-\sqrt{\frac{1}{(x-4)(y-3)}}; \sqrt[3]{a^{6(n+1)} b^3 c^{n+3}}$
30	$(a-b)^2 c^3 \sqrt[5]{(a-b)c^2}$	$\frac{\pi^n}{e} \sqrt[n]{\frac{e^{n+1}}{\pi^{n-1}}}$	$\sqrt[5]{(a-b)^{11} c^{17}}; \sqrt[n]{e\pi}$
31	$\frac{a^2 - b^2}{x^2 y^4 - x^4 y^2} \sqrt[3]{\frac{x^6 y^8 (y+x)^3}{(a-b)^4 (a+b)^3}}$	$(\sqrt{2} + \sqrt{3}) \sqrt{5 - 2\sqrt{6}}$	$\sqrt[3]{\frac{y^2}{(a-b)(y-x)^3}}; 1$

## potenza di un radicale

32	$(\sqrt{a^2 b^3 c})^3$	$\left(\sqrt[3]{\frac{x^2 y}{4}}\right)^2$	$\left(\frac{2}{5} \sqrt{\frac{75}{8}}\right)^4$	$a^3 b^4 c \sqrt{bc}; \frac{x}{2} \sqrt[3]{xy^2}; \frac{9}{4}$
33	$\left(\sqrt[4]{\frac{27a^3 bc^2}{x^4 y^5}}\right)^2$	$\left(\sqrt[5]{\frac{(7-y)}{2}}\right)^5$	$(\sqrt[mn]{6x^2 y})^{m^2}$	$\frac{3ac}{x^2 y^2} \sqrt{\frac{3ab}{y}}; \frac{7-y}{2}; \sqrt[n]{6^m x^{2m} y^m}$
34	$(\sqrt{x-y})^3$	$(\sqrt[3]{1+ab})^6$	$(\sqrt[n]{5^{n-1} e})^{2n}$	$(x-y)\sqrt{x-y}; (1+ab)^2; e^2 25^{n-1}$
35	$\left(\sqrt[10]{\frac{(x+y)^4}{(t-v)^3}}\right)^{15}$	$\left(\sqrt[4]{(2a-3)^2 (2a+3)^3 x^7 y^5}\right)^{12}$		$\frac{(x+y)^6}{(t-v)^4} \sqrt{\frac{1}{t-v}}; (2a-3)^6 (2a+3)^9 x^{21} y^{15}$
36	$\left(\sqrt[3]{\frac{x^4 y^2 z^3}{(a-b)^4 u^5}}\right)^4$	$\left(\sqrt{\sqrt{3} + \sqrt{5}}\right)^4$		$\frac{x^5 y^2 z^4}{(a-b)^5 u^6} \sqrt[3]{\frac{xy^2}{(a-b)u^2}}; 2(4 + \sqrt{15})$

radice di radice				
37	$\sqrt[3]{\sqrt{2a}}$	$\sqrt[4]{\sqrt[3]{\frac{5xy}{z}}}$	$\sqrt[5]{\sqrt[3]{25(x+z)}}$	$\sqrt[6]{2a}; \sqrt[12]{\frac{5xy}{z}}; \sqrt[15]{25(x+z)}$
38	$\sqrt[3]{\sqrt[4]{x^{17}y^{36}}}$	$\sqrt[n+1]{\sqrt[n-1]{a^{n^2-1}}}$	$\sqrt{\sqrt{a^8b^7c^6}}$	$xy^3 \cdot \sqrt[12]{x^5}; a; a^2bc \cdot \sqrt[4]{b^3c^2}$
39	$\sqrt[5]{z^2 \cdot \sqrt[7]{z^3}}$	$\sqrt{a^2b^3 \cdot \sqrt[3]{a^3b^2}}$		$\sqrt[35]{z^{17}}; ab \cdot \sqrt[6]{a^3b^5}$
40	$\sqrt[3]{\sqrt{x}}$	$\sqrt[5]{x\sqrt{x}}$		$\sqrt[6]{x}; \sqrt[10]{x^3}$
41	$\sqrt[4]{\frac{a-b}{bc} \sqrt{\frac{b^3c}{a-b}}}$	$\sqrt{x^2y^2 \cdot \sqrt{\frac{1}{x^2y^2} \sqrt{xy}}}$		$\sqrt[8]{\frac{b(a-b)}{c}}; \sqrt[8]{x^5y^5}$
42	$\sqrt[3]{(x+y) \cdot \sqrt[3]{\frac{(x-y)}{(x+y)^2}}}$			$\sqrt[9]{x^2 - y^2}$
43	$\sqrt{\frac{1}{2} \cdot \sqrt[3]{4 \cdot \sqrt{\frac{1}{4}}}}$			$\sqrt[3]{\frac{1}{2}}$
44	$\sqrt[3]{(a+b)^2 \cdot \sqrt{(a+b) \cdot \sqrt[3]{(a+b)}}$			$\sqrt[9]{(a+b)^8}$

somma algebrica di radicali		
45	$3\sqrt{5} - 2\sqrt{5} - 5\sqrt{5} + 10\sqrt{2}$	$6\sqrt{5}$
46	$3\sqrt{2} - 6(\sqrt{2} + \sqrt{3}) + 5\sqrt{3}$	$-(3\sqrt{2} + \sqrt{3})$
47	$2(\sqrt{5} + \sqrt{3}) - 8\sqrt{5} - 2\sqrt{3} + 7\sqrt{5}$	$\sqrt{5}$
48	$3\sqrt{2} + 4\sqrt{8} - \sqrt{50}$	$6\sqrt{2}$

49	$2\sqrt{27} - 5\sqrt{48} + 3\sqrt{75}$	$\sqrt{3}$
50	$3\sqrt{75} + 2\sqrt{12} - 3\sqrt{48} - 7\sqrt{3}$	0
51	$2\sqrt{63} + 4\sqrt{12} - 2\sqrt{28} - \sqrt{27}$	$2\sqrt{7} + 5\sqrt{3}$
52	$\frac{3}{4}\sqrt{\frac{45}{2}} + \frac{1}{3}\sqrt{\frac{125}{2}} - \frac{2}{5}\sqrt{\frac{490}{4}}$	$\frac{67}{60}\sqrt{\frac{5}{2}}$
53	$\sqrt[3]{16} + \sqrt[3]{54} - \sqrt[3]{250}$	0
54	$\sqrt[3]{128} + \sqrt[3]{16} - 3\sqrt[3]{250} - \sqrt[3]{54}$	$12\sqrt[3]{2}$
55	$\sqrt{72} - \sqrt{18} + \sqrt{12} - \sqrt{48} + \sqrt{2}$	$2(2\sqrt{2} - \sqrt{3})$
56	$\sqrt[3]{243} - 2\sqrt{125} - \sqrt[3]{72} + 3\sqrt{45} + 2\sqrt[3]{9} - \sqrt{20}$	$3\sqrt[3]{9} - \sqrt{5}$
57	$\frac{3}{4}\sqrt[3]{\frac{1}{2}} + \frac{1}{2}\sqrt[3]{\frac{54}{4}} - \frac{2}{5}\sqrt[3]{\frac{125}{16}}$	$\frac{5}{4}\sqrt[3]{\frac{1}{2}}$
58	$\frac{1}{2}\sqrt[3]{a^2b} + 3\sqrt[3]{a^5b} - \frac{1}{3}\sqrt[3]{a^5b} - \frac{3}{4}\sqrt[6]{a^4b^2}$	$\frac{8}{3}\sqrt[3]{a^5b} - \frac{1}{4}\sqrt[3]{a^2b}$
59	$2\sqrt{a} + \frac{1}{2}(\sqrt{a} - \sqrt{b}) + 4(\sqrt{b} + 2\sqrt{a}) + \frac{3}{2}(\sqrt{a} + \sqrt{b})$	$12\sqrt{a} + 5\sqrt{b}$
60	$5\sqrt[3]{a-b} + (x-2)\sqrt[5]{a+b} + 4(\sqrt{ab} - \sqrt[3]{a-b}) - 4\sqrt{ab} + 2\sqrt[5]{a+b}$	$\sqrt[3]{a-b} + x\sqrt[5]{a+b}$
61	$5(\sqrt{ab^2} - \sqrt[3]{a^2b}) - 8\sqrt{ab^2} + 3 - 6(\sqrt[3]{a^2b} + 1 + \sqrt{a}) + 3\sqrt{a}$	$-3(\sqrt{ab^2} + \sqrt{a} + 1) - 16\sqrt[3]{a^2b}$
62	$\sqrt{a^3 + 3a^2b + 3ab^2 + b^3} - \sqrt{a^3 + a^2b} + \frac{1}{2}\sqrt{4ab^2 + 4b^3} - 2b\sqrt[4]{a^2 + 2ab + b^2}$	0
63	$2a - \frac{1}{2}\sqrt[3]{128a^5} - \frac{2}{3}\sqrt[3]{27a^3} + \sqrt[3]{2a^2} + \sqrt[3]{54a^2x^3} + \sqrt[3]{16a^5}$	$(1+3x)\sqrt[3]{2a^2}$

## prodotti notevoli con i radicali

64	$(\sqrt{7} - 2)(\sqrt{7} + 2)$	$(3\sqrt{5} - 4\sqrt{2})(3\sqrt{5} + 4\sqrt{2})$	3; 13
65	$(\sqrt{a} + 2\sqrt{b})^2$	$(\sqrt{11} - \sqrt{3})^2$	$a + 4b + 4\sqrt{ab}$ ; $2(10 - \sqrt{33})$
66	$(\sqrt{x} + \frac{1}{\sqrt{x}})^2$	$(\sqrt[4]{x} - 3\sqrt[6]{y})^2$	$\frac{(x+1)^2}{x}$ ; $\sqrt{x} + 9\sqrt[3]{y} - 6\sqrt[12]{x^3y^2}$
67	$(3 + \sqrt{5})^2$	$(\sqrt{7} - 2\sqrt{3})^2$	$14 + 6\sqrt{5}$ ; $19 - 4\sqrt{21}$
68	$(a\sqrt{b} - c\sqrt{d})(a\sqrt{b} + c\sqrt{d})$		$a^2b - c^2d$

69	$\left(\frac{1}{2}\sqrt{2x} - \frac{2}{3}\sqrt{x}\right)\left(\frac{1}{2}\sqrt{2x} + \frac{2}{3}\sqrt{x}\right)$	$\frac{x}{18}$
70	$(\sqrt{x} + 3)^3$	$x\sqrt{x} + 27 + 9x + 27\sqrt{x}$
71	$(2^3\sqrt{a} - 3^6\sqrt{b})^3$	$8a - 27\sqrt{b} - 36^6\sqrt{a^2b} + 54^3\sqrt{ab}$
72	$(\sqrt{5} - \sqrt{3} + \sqrt{2})^2$	$10 - 2\sqrt{15} + 2\sqrt{10} - 2\sqrt{6}$

## radicali doppi

73	$\sqrt{4 - \sqrt{7}}$	$\sqrt{\frac{7}{2}} - \sqrt{\frac{1}{2}}$
74	$\sqrt{3 + \sqrt{5}}$	$\sqrt{\frac{5}{2}} + \sqrt{\frac{1}{2}}$
75	$\sqrt{9 - \sqrt{17}}$	$\sqrt{\frac{17}{2}} - \sqrt{\frac{1}{2}}$
76	$\sqrt{10 + \sqrt{19}}$	$\sqrt{\frac{19}{2}} + \sqrt{\frac{1}{2}}$
77	$\sqrt{4 - \sqrt{12}}$	$\sqrt{3} - 1$
78	$\sqrt{8 + \sqrt{48}}$	$\sqrt{6} + \sqrt{2}$
79	$\sqrt{5 - 2\sqrt{6}}$	$\sqrt{3} - \sqrt{2}$
80	$\sqrt{8 - 2\sqrt{15}}$	$\sqrt{5} - \sqrt{3}$
81	$\sqrt{4 + 2\sqrt{3}}$	$\sqrt{3} + 1$
82	$\sqrt{12 - 2\sqrt{11}}$	$\sqrt{11} - 1$
83	$\sqrt{20 + \sqrt{279}}$	$\sqrt{\frac{31}{2}} + \sqrt{\frac{9}{2}}$
84	$\sqrt{13 - 4\sqrt{3}}$	$2\sqrt{3} - 1$
85	$\sqrt{18 + 3\sqrt{11}}$	$\sqrt{\frac{33}{2}} + \sqrt{\frac{3}{2}}$
86	$\sqrt{\frac{7}{6} - \frac{2}{\sqrt{3}}}$	$\sqrt{\frac{2}{3}} - \sqrt{\frac{1}{2}}$
87	$\sqrt{\frac{6}{5} - \sqrt{\frac{4}{5}}}$	$1 - \frac{\sqrt{5}}{5}$

88	$\sqrt{4\sqrt{2} - 2\sqrt{6}}$		$\sqrt[4]{18} - \sqrt[4]{2}$
89	$\sqrt{a + 3 + 2\sqrt{3a}}$	$(a > 0)$	$\sqrt{a} + \sqrt{3}$
90	$\sqrt{x - \sqrt{2x - 1}}$	$(x > \frac{1}{2})$	$\sqrt{\frac{2x-1}{2}} - \sqrt{\frac{1}{2}}$
91	$\sqrt{(a+b) + 2\sqrt{ab}}$	$(a, b \in \mathbb{N})$	$\sqrt{a} + \sqrt{b}$
92	$\sqrt{x + y - 2\sqrt{xy}}$	$(x, y \in \mathbb{R}^+)$	$\sqrt{x} - \sqrt{y}$

## espressioni con i radicali

93	$\sqrt{3 - \sqrt{5}} \cdot \sqrt{6 - 4\sqrt{2}} \cdot \sqrt{3 + \sqrt{5}} \cdot \sqrt{6 + 4\sqrt{2}}$		4
94	$\frac{1}{3 + \sqrt{3}} - \frac{1}{3 - \sqrt{3}} - \sqrt{3}$		$-\frac{4\sqrt{3}}{3}$
95	$\frac{\sqrt{a}}{\sqrt{a} + \sqrt{b}} + \frac{\sqrt{b}}{\sqrt{a} - \sqrt{b}} - \frac{2a}{a - b}$		-1
96	$(3\sqrt{x} - 2\sqrt{y})(\sqrt{x} + \sqrt{y} + 1) - (\sqrt{x} - 2)(2\sqrt{x} + \sqrt{y})$		$x - 2y + 7\sqrt{x}$
97	$\frac{\sqrt{2}}{1 - \sqrt{5}} + \frac{\sqrt{2} - 3}{\sqrt{5}} - \frac{3(\sqrt{5} - 1)}{\sqrt{5} - 5}$		$\frac{\sqrt{2}}{\sqrt{5} - 5}$
98	$(\sqrt{x} - \sqrt{y})^2 - (\sqrt{x} - 1)(\sqrt{x} - \sqrt{y}) + (\sqrt{y} + 2)(\sqrt{x} + 1) - 3(y + \sqrt{x})$		$2(1 - y)$
99	$\frac{\sqrt{a+b}}{2\sqrt{a-b}} + \frac{\sqrt{a-b}}{3\sqrt{a+b}} - \frac{\sqrt{a+b}}{\sqrt{a-b}}$		$-(a + 5b)$
100	$\sqrt[3]{\frac{(x-1)^4}{x^2+x}} \div \left[ \sqrt[6]{\frac{(x-1)^5}{(x+1)}} \cdot \sqrt{\frac{x^2-1}{x}} \right]$		$\sqrt[6]{x}$
101	$\left( \sqrt[6]{\frac{x+5}{x-2}} \cdot \sqrt[3]{\frac{x+5}{x-2}} \right)^2 - \left( \frac{5}{x-2} + 1 \right)$		$\frac{8}{x-2}$

102	$\sqrt{27x^3y} + x\sqrt{12xy} - \sqrt[6]{27x^3y^3} - 4x\sqrt{3xy} + \sqrt[4]{9x^2y^2}$	$x\sqrt{3xy}$
103	$\left[ \left( \sqrt[3]{x^2 + 2xy + y^2} \cdot \sqrt[4]{\frac{x-y}{(x+y)^3}} \right)^{12} \sqrt{\frac{x-y}{x+y}} \right] + \sqrt[4]{(x-y)^3 \sqrt{\frac{1}{x-y}}}$	$2\sqrt[6]{x-y}$
104	$\frac{\sqrt[3]{8x^4y^4} + \sqrt[3]{x^7y^7} + \sqrt[6]{x^2y^2}}{\sqrt[3]{x^7y^7} - \sqrt[3]{xy}}$	$\frac{xy+1}{xy-1}$
105	$\frac{\sqrt{a^6\sqrt{b}}}{\sqrt{b^3\sqrt{a}}}$	$a^2 \sqrt[12]{\frac{a^{10}}{b^3}}$
106	$\sqrt{a^3b} \cdot \sqrt{a^5b^7}$	$a^4b^4$
107	$\sqrt{x^2-1} : \sqrt{x+1}$	$\sqrt{x-1}$
108	$\sqrt{72} : \sqrt{6} : \sqrt{2}$	$\sqrt{6}$
109	$\sqrt{\frac{5}{2}} : \sqrt{\frac{10}{27}} : \sqrt{\frac{3}{8}}$	$3\sqrt{2}$
110	$(2\sqrt{5} - 5\sqrt{2})^2$	$10(7 - 2\sqrt{10})$
111	$(\sqrt{2-x} - \sqrt{2+x})^2 + (\sqrt{4-x^2} + 1)^2$	$9 - x^2$
112	$(1 + 2\sqrt{2} - 3\sqrt{3})^2 - (1 - \sqrt{2})^3$	$29 + 9\sqrt{2} - 6\sqrt{3} - 12\sqrt{6}$
113	$2\sqrt{\frac{2a^3-a^2}{b^3-b^2}} - 3a\sqrt{\frac{2a-1}{b^3-b^2}} + \frac{2}{b}\sqrt{\frac{2a^3-a^2}{b-1}}$	$\frac{a}{b}\sqrt{\frac{2a-1}{b-1}}$
114	$\frac{\sqrt[3]{8x^4y^4} + \sqrt[3]{x^7y^7} + \sqrt[6]{x^2y^2}}{\sqrt[3]{x^7y^7} - \sqrt[3]{xy}}$	$\frac{xy+1}{xy-1}$
115	$\frac{3}{2+\sqrt{3}} + \frac{3}{2-\sqrt{3}} - 5$	7
116	$\frac{4 - \sqrt{5} - (2 + \sqrt{5}) - (2 - \sqrt{5})}{\sqrt{5}(2 - \sqrt{5})(2 + \sqrt{5})}$	1
117	$\left(\sqrt{ax} + \frac{ax}{a - \sqrt{ax}}\right) \left(\sqrt{ax} - \frac{ax}{a + \sqrt{ax}}\right)$	$\frac{a^2x}{a-x}$
118	$\frac{a\sqrt{x} - x\sqrt{a}}{\sqrt{a} - \sqrt{x}} + \frac{a\sqrt{a}}{\sqrt{a} + \sqrt{x}} + \frac{x(\sqrt{ax} - x)}{a-x}$	$a+x$



119	$\frac{\sqrt{b}}{\sqrt{a} + \sqrt{b}} - \frac{\sqrt{b}}{\sqrt{a} - \sqrt{b}} + \frac{2a}{a - b}$	2
120	$\left( \frac{\sqrt{2x+3}}{\sqrt{2x+3} - \sqrt{2x-3}} - \frac{\sqrt{2x+3}}{\sqrt{2x+3} + \sqrt{2x-3}} \right) : \frac{\sqrt{2x-3}}{3}$	$\sqrt{2x+3}$
121	$\frac{\sqrt{a-b}}{\sqrt{a+b} + \sqrt{a-b}} - \frac{\sqrt{a-b}}{\sqrt{a+b} - \sqrt{a-b}}$	$\frac{b-a}{b}$
122	$\frac{3\sqrt{a} + 2\sqrt{x}}{3\sqrt{a} - 2\sqrt{x}} - \frac{3\sqrt{a} - 2\sqrt{x}}{3\sqrt{a} + 2\sqrt{x}} - \frac{24\sqrt{ax}}{9a - 4x}$	0
123	$\frac{2x - \sqrt{4x^2 + 1}}{x + \sqrt{3x^2 + 2}} : \frac{x - \sqrt{3x^2 + 2}}{2x + \sqrt{4x^2 + 1}} : \frac{1}{x^2 + 1}$	$\frac{1}{2}$
124	$\frac{3}{4\sqrt{10}} \left( \frac{\sqrt{5} + \sqrt{2}}{\sqrt{5} - \sqrt{2}} - \frac{\sqrt{5} - \sqrt{2}}{\sqrt{5} + \sqrt{2}} \right) : \sqrt{17^2 - 15^2} + 1$	$\frac{9}{4}$
125	$\left[ \left( 1 + \frac{\sqrt{3}}{2} \right) \left( 2 - \frac{7}{2 + \sqrt{3}} \right) : \left( 1 - \frac{2}{2 + \sqrt{3}} \right) \right] : \frac{1}{2\sqrt{3}}$	$\frac{\sqrt{3}}{3}$
126	$(\sqrt{5} - \sqrt{3})\sqrt{4 + \sqrt{15}}$	$\sqrt{2}$
127	$\sqrt{7 + 2\sqrt{10}} - \sqrt{7 - 2\sqrt{10}}$	$2\sqrt{2}$
128	$(2\sqrt{a} + 3\sqrt{b}) : (2\sqrt{a} - 3\sqrt{b}) - (12\sqrt{ab} + 18b) : (4a - 9b)$	1
129	$\frac{\sqrt[4]{a}}{\sqrt[4]{a} - 1} + \frac{\sqrt[4]{a}}{\sqrt[4]{a} + 1} - \frac{\sqrt{a} + 1}{\sqrt{a} - 1}$	1
130	$\frac{1}{\sqrt{5} + \sqrt{3}} + \frac{1}{\sqrt{5} - \sqrt{3}} - \frac{3}{2} \sqrt{\frac{20}{9}}$	0
131	$\left( \sqrt[4]{a^7} - \frac{ab}{\sqrt[4]{a}} \right) : \left( \sqrt[3]{a} - \frac{b}{\sqrt[3]{a^2}} \right)$	$a^{12} \sqrt[4]{a^5}$
132	$\left( \sqrt{a+b} + \frac{1}{\sqrt{a-b}} \right) : \left( 1 + \frac{1}{\sqrt{a^2 - b^2}} \right)$	$\sqrt{a+b}$
133	$\left( \sqrt{2-3x} + \frac{1}{\sqrt{2+3x}} \right) : \left( 1 + \frac{1}{\sqrt{4-9x^2}} \right)$	$\sqrt{2-3x}$
134	$\sqrt{\sqrt{5x+4} + \sqrt{5x-4}} \cdot \sqrt{\sqrt{5x+4} - \sqrt{5x-4}}$	$2\sqrt{2}$
135	$\left( \sqrt[5]{x^3 \sqrt{x^2}} \cdot \sqrt[5]{x^2 \sqrt{x^3 \sqrt{x^2}}} : \sqrt[5]{x^4 \sqrt[3]{x^2}} \right)^3$	$\frac{10\sqrt{x^9}}{x}$
136	$\frac{a-1}{a\sqrt{a}+1} \left( a + \frac{1+a}{a} \right)$	$\frac{a\sqrt{a}-1}{a}$

137	$\frac{6}{\sqrt{3}} + \frac{5}{\sqrt{5}}$	$2\sqrt{3} + \sqrt{5}$
138	$\frac{-2\sqrt{2}}{(2 + \sqrt{6}) - (\sqrt{2} + 2\sqrt{3})}$	$\sqrt{6} + \sqrt{3} + \sqrt{2} + 1$
139	$\sqrt{\frac{2}{\sqrt{5} - \sqrt{3}}}$	$\sqrt{\sqrt{5} + \sqrt{3}}$
140	$\frac{x^2 - y^2}{\sqrt[3]{x^2} + \sqrt[3]{xy} + \sqrt[3]{y^2}}$	$(x + y)(\sqrt[3]{x} - \sqrt[3]{y})$
141	$\sqrt{\frac{a + \sqrt{b}}{a - \sqrt{b}}} \cdot \sqrt{a^2 - b}$	$a + \sqrt{b}$
142	$\left(\frac{\sqrt{2}}{\sqrt{3}} + \frac{\sqrt{3}}{\sqrt{2}}\right) \left(\frac{\sqrt{3}}{\sqrt{5}} + \frac{\sqrt{5}}{\sqrt{3}}\right)$	$\frac{4}{3}\sqrt{10}$
143	$\left(\frac{\sqrt{a}}{\sqrt{b}} + \frac{\sqrt{b}}{\sqrt{a}}\right) \left(\frac{1}{\sqrt{a}} + \frac{1}{\sqrt{b}}\right)$	$\frac{(a + b)(\sqrt{a} + \sqrt{b})}{ab}$
144	$\left(\frac{1}{\sqrt[3]{3}} + \frac{1}{\sqrt[3]{9}}\right) \cdot \frac{6}{\sqrt[3]{3} + \sqrt[3]{9}}$	2
145	$\frac{1}{2\sqrt{5}} \left(\frac{\sqrt{5}}{\sqrt[3]{3}} - \frac{\sqrt[3]{9}}{\sqrt{5}}\right)$	$\frac{\sqrt[3]{9}}{15}$
146	$\sqrt{\frac{(a + 2\sqrt{b})(a\sqrt{b} + 2b)}{\sqrt{b}}} \cdot \frac{a - 2\sqrt{b}}{a^2 - 4b}$	1
147	$\sqrt{\frac{2\sqrt{3} - 3}{\sqrt{3}}} (2 - \sqrt{3})(2 + \sqrt{3})$	$\frac{\sqrt{6} - \sqrt{2}}{2}$
148	$\frac{\sqrt{2 - \sqrt{2}}}{\sqrt{2 + \sqrt{2}}} \cdot \frac{\sqrt{3 + \sqrt{7}}}{\sqrt{3 - \sqrt{7}}} (3 - \sqrt{7})$	$2 - \sqrt{2}$
149	$\sqrt{\left(\sqrt[5]{a^2} - \frac{b}{\sqrt[5]{a^3}}\right) \left(\sqrt[5]{a^2} - \frac{b}{\sqrt[5]{a^3}}\right)}$	$\frac{\sqrt[5]{a^2} a - b }{ a }$
150	$\left[\left(\frac{a + b}{\sqrt{b}} - \sqrt{a}\right) : \left(\frac{1}{\sqrt{b}} - \frac{1}{\sqrt{a}}\right)\right] \frac{a - b}{a\sqrt{a} + b\sqrt{b}}$	$\sqrt{a}$
151	$\sqrt{\frac{\sqrt{x - \sqrt{x^2 - y^2}}}{\sqrt{x + \sqrt{x^2 - y^2}}}}$	$\frac{\sqrt{2y}(\sqrt{x + y} - \sqrt{x - y})}{2y}$ con $y > 0$
152	$\frac{a^{x+y} x^{-y}}{b} \sqrt{\frac{b^{2x-2y}}{a^{x^2-y^2}}}$	$b$