Espressioni con le quattro operazioni e l'estrazione di radice, senza frazioni. Completi di soluzione guidata.

Square root Expressions.

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1. $\sqrt{1}+\sqrt{64}-\sqrt{25}-\sqrt{16}+\sqrt{2^2}$ [2] soluzione

2. $\sqrt{100}-\sqrt{81}+\sqrt{64}-\sqrt{49}+\sqrt{36}-\sqrt{25}+\sqrt{16}-\sqrt{9}+\sqrt{4}-\sqrt{1}+\sqrt{0}$ [5] soluzione

3. $\mathbf{3\cdot\sqrt{4}+2\cdot\sqrt{9}+5\cdot\sqrt{4}-\sqrt{1}-4\cdot\sqrt{9}}$ [9] soluzione

4. $\mathbf{2\cdot\sqrt{25}+\sqrt{4}\cdot\sqrt{9}+2\cdot\sqrt{4}-\sqrt{1}-3\cdot\sqrt{1}}$ [16] soluzione

5. $\sqrt{\sqrt{256}}-\sqrt{\sqrt{81}}+\sqrt{\sqrt{16}}-\sqrt{\sqrt{1}}$ [2] soluzione

6. $\sqrt{(9^3\cdot 9^4):(9^2\cdot 9^3)}$ [9] soluzione

7. $\sqrt{10+5\cdot 3-2^2\cdot 4}$ [3] soluzione

8. $\sqrt{[1+(3^3\cdot 2-2^4\cdot 3-2\cdot 3)\cdot 3^2]^6\cdot 2^3-2^2}$ [2] soluzione

9. $\sqrt{(2+2\cdot 6)^2-23\cdot 3-\sqrt{3\cdot 13-2\cdot 7+\sqrt{(2\cdot 5)^2+7\cdot 3}}}$ [11] soluzione

10. $\sqrt{(11+5):2^3+(2^2:2)\cdot 7}$ [4] soluzione

11. $\sqrt{2^5:2^3}+\sqrt{3^4}-\sqrt{121}+2\cdot\sqrt{1}+\sqrt[3]{27}$ [5] soluzione

12. $\sqrt[3]{8}+\sqrt{2^6}-\sqrt[4]{81}-\sqrt[4]{16}$ [5] soluzione

13. $\sqrt{(9^3\cdot 9^4):(9^2\cdot 9^3)}$ [9] soluzione

14. $\left(\sqrt{80+40:2}+1+\sqrt{25}\right):\sqrt{2+31\cdot 2}+\left(10\cdot\sqrt{64}+10\cdot\sqrt{16}\right):60$ [4] soluzione

15. $\sqrt{[13^6 \cdot (13^5 : 13)]^2 : [13^{13} : (13^2 \cdot 13^3)^2]^6}$ [13]

soluzione

16. $\sqrt{11 + \{17 + [3 \cdot (29 - 2^3 \cdot 2) + 9 \cdot 5] : (3 \cdot 7) + (3^2 - 1) : (4 : 2)\}} =$ [6]

soluzione

17. $\sqrt{\{[(3^4 : 3^2) \cdot (2^2)^2 : (3 \cdot 2^2) \cdot (40 : 2^2)] : 2^2 + 30 : 3^1\} : (80 : 2^3)} =$ [2]

soluzione

Soluzioni

$\sqrt{\mathbf{1}} + \sqrt{\mathbf{64}} - \sqrt{\mathbf{25}} - \sqrt{\mathbf{16}} + \sqrt{\mathbf{2^2}} =$

Abbiamo tutti quadrarti perfetti.

$= \mathbf{1 + 8 - 5 - 4 + 2} =$

$= \mathbf{9 - 5 - 4 + 2} =$

$= \mathbf{4 - 4 + 2} = \mathbf{2}$

$\sqrt{\mathbf{64}} \xrightarrow{x^2=64} \mathbf{8}$

$\sqrt{\mathbf{25}} \xrightarrow{x^2=25} \mathbf{5}$

$\sqrt{\mathbf{16}} \xrightarrow{x^2=16} \mathbf{4}$

$\sqrt{\mathbf{2^2}} \xrightarrow{x^2=2^2} \mathbf{2}$

$\sqrt{\mathbf{100}} - \sqrt{\mathbf{81}} + \sqrt{\mathbf{64}} - \sqrt{\mathbf{49}} + \sqrt{\mathbf{36}} - \sqrt{\mathbf{25}} + \sqrt{\mathbf{16}} - \sqrt{\mathbf{9}} + \sqrt{\mathbf{4}} - \sqrt{\mathbf{1}} + \sqrt{\mathbf{0}} =$

Abbiamo tutti quadrarti perfetti.

$= \mathbf{10 - 9 + 8 - 7 + 6 - 5 + 4 - 3 + 2 - 1} =$

La sequenza è data da coppie la cui differenza è sempre 1.

$= \mathbf{1 + 1 + 1 + 1 + 1} = \mathbf{5}$

$\sqrt{\mathbf{100}} \xrightarrow{x^2=100} \mathbf{10}$ $\quad$ $\sqrt{\mathbf{81}} \xrightarrow{x^2=81} \mathbf{9}$

$\sqrt{\mathbf{64}} \xrightarrow{x^2=64} \mathbf{8}$ $\quad$ $\sqrt{\mathbf{49}} \xrightarrow{x^2=49} \mathbf{7}$

$\sqrt{\mathbf{36}} \xrightarrow{x^2=36} \mathbf{6}$ $\quad$ $\sqrt{\mathbf{25}} \xrightarrow{x^2=25} \mathbf{5}$

$\sqrt{\mathbf{16}} \xrightarrow{x^2=16} \mathbf{4}$ $\quad$ $\sqrt{\mathbf{9}} \xrightarrow{x^2=9} \mathbf{3}$

$\sqrt{\mathbf{4}} \xrightarrow{x^2=4} \mathbf{2}$ $\quad$ $\sqrt{\mathbf{1}} \xrightarrow{x^2=1} \mathbf{1}$

$$3 \cdot \sqrt{4} + 2 \cdot \sqrt{9} + 5 \cdot \sqrt{4} - \sqrt{1} - 4 \cdot \sqrt{9} =$$
$$= 3 \cdot 2 + 2 \cdot 3 + 5 \cdot 2 - 1 - 4 \cdot 3 =$$
$$= 6 + 6 + 10 - 1 - 12 =$$
$$= 12 + 10 - 1 - 12 = \qquad 12 - 12 = 0$$
$$= 10 - 1 = 9$$

$$\sqrt{4} \xrightarrow{x^2=4} 2$$
$$\sqrt{9} \xrightarrow{x^2=9} 3$$
$$\sqrt{1} \xrightarrow{x^2=1} 1$$

$$2 \cdot \sqrt{25} + \sqrt{4} \cdot \sqrt{9} + 2 \cdot \sqrt{4} - \sqrt{1} - 3 \cdot \sqrt{1} =$$
$$= 2 \cdot 5 + 2 \cdot 3 + 2 \cdot 2 - 1 - 3 \cdot 1 =$$
$$= 10 + 6 + 4 - 1 - 3 =$$
$$= 20 - 1 - 3 = 16$$

$$\sqrt{25} \xrightarrow{x^2=25} 5$$
$$\sqrt{4} \xrightarrow{x^2=4} 2$$
$$\sqrt{1} \xrightarrow{x^2=1} 1$$

$\sqrt{(9^3 \cdot 9^4) : (9^2 \cdot 9^3)} =$

$= \sqrt{(9^{3+4}) : (9^{2+3})} =$

$= \sqrt{(9^7) : (9^5)} =$

$= \sqrt{9^{7-5}} =$

$= \sqrt{9^2} = 9$

Proprietà delle potenze utilizzate.

$\boldsymbol{a^m \cdot a^n = a^{m+n}}$

$\boldsymbol{a^m : a^n = a^{m-n}}$

$\sqrt{\sqrt{\mathbf{256}}} - \sqrt{\sqrt{\mathbf{81}}} + \sqrt{\sqrt{\mathbf{16}}} - \sqrt{\sqrt{\mathbf{1}}} =$

$= \sqrt{\mathbf{16}} - \sqrt{\mathbf{9}} + \sqrt{\mathbf{4}} - \sqrt{\mathbf{1}} =$

$= \mathbf{4 - 3 + 2 - 1} =$

$= \mathbf{1 + 1 = 2}$

$\sqrt{10 + 5 \cdot 3 - 2^2 \cdot 4} =$

$= \sqrt{10 + 15 - 4 \cdot 4} =$

$= \sqrt{10 + 15 - 16} =$

$= \sqrt{9} = 3$

$$\sqrt{[1+(3^3\cdot 2-2^4\cdot 3-2\cdot 3)\cdot 3^2]^6\cdot 2^3-2^2}=$$

$$=\sqrt{[1+(27\cdot 2-16\cdot 3-6)\cdot 9]^6\cdot 8-4}=$$

$$=\sqrt{[1+(54-48-6)\cdot 9]^6\cdot 8-4}=$$

$$=\sqrt{[1+(6-6)\cdot 9]^6\cdot 8-4}=$$

$$=\sqrt{[1]^6\cdot 8-4}=$$

$$=\sqrt{8-4}=$$

$$=\sqrt{4}=2$$

$$\sqrt{(2+2\cdot 6)^2-23\cdot 3-\sqrt{3\cdot 13-2\cdot 7+\sqrt{(2\cdot 5)^2+7\cdot 3}}}=$$

$$=\sqrt{(2+12)^2-69-\sqrt{39-14+\sqrt{10^2+21}}}=$$

$$=\sqrt{14^2-69-\sqrt{25+\sqrt{100+21}}}=$$

$$=\sqrt{196-69-\sqrt{25+\sqrt{121}}}=$$

$$=\sqrt{127-\sqrt{25+11}}=$$

$$=\sqrt{127-\sqrt{36}}=$$

$$=\sqrt{127-6}=\sqrt{121}=11$$

$\sqrt{(11+5):2^3+(2^2:2)\cdot 7}=$

$=\sqrt{(11+5):8+2\cdot 7}=$

$=\sqrt{16:8+14}=$

$=\sqrt{2+14}=$

$=\sqrt{16}=4$

$\sqrt{2^5:2^3}+\sqrt{3^4}-\sqrt{121}+2\cdot\sqrt{1}+\sqrt[3]{27}=$

$=\sqrt{2^{5-3}}+3^2-11+2\cdot 1+3=$

$=\sqrt{2^2}+9-11+2+3=$

$=2+9-11+2+3=5$

Proprietà delle potenze utilizzate.

$\boldsymbol{a^m : a^n = a^{m-n}}$

$\sqrt[3]{8}+\sqrt{2^6}-\sqrt[4]{81}-\sqrt[4]{16}=$

$=2+2^3-3-2=$

$=2+8-3-2=$

$=8-3=5$

$\sqrt{(9^3 \cdot 9^4) : (9^2 \cdot 9^3)} =$

$= \sqrt{(9^{3+4}) : (9^{2+3})} =$

$= \sqrt{9^7 : 9^5} =$

$= \sqrt{9^{7-5}} = \sqrt{9^2} = 9$

Proprietà delle potenze utilizzate.

$\boldsymbol{a^m \cdot a^n = a^{m+n}}$

$\boldsymbol{a^m : a^n = a^{m-n}}$

$\left(\sqrt{80 + 40 : 2} + 1 + \sqrt{25}\right) : \sqrt{2 + 31 \cdot 2} + \left(10 \cdot \sqrt{64} + 10 \cdot \sqrt{16}\right) : 60 =$

$\left(\sqrt{80 + 20} + 1 + 5\right) : \sqrt{2 + 62} + (10 \cdot 8 + 10 \cdot 4) : 60 =$

$\left(\sqrt{100} + 1 + 5\right) : \sqrt{64} + (80 + 40) : 60 =$

$= (10 + 1 + 5) : 8 + 120 : 60 =$

$= (11 + 5) : 8 + 2 =$

$= 16 : 8 + 2 =$

$= 2 + 2 = 4$

$$\sqrt{[13^6 \cdot (13^5 : 13)]^2 : [13^{13} : (13^2 \cdot 13^3)^2]^6} =$$

$$= \sqrt{[13^6 \cdot (13^{5-1})]^2 : [13^{13} : (13^{2+3})^2]^6} =$$

$$= \sqrt{[13^6 \cdot 13^4]^2 : [13^{13} : (13^5)^2]^6} =$$

$$= \sqrt{[13^{6+4}]^2 : [13^{13} : 13^{5 \cdot 2}]^6} =$$

$$= \sqrt{[13^{10}]^2 : [13^{13} : 13^{10}]^6} =$$

$$= \sqrt{13^{10 \cdot 2} : [13^{13-10}]^6} =$$

$$= \sqrt{13^{20} 13^{3 \cdot 6}} =$$

$$= \sqrt{13^{20-18}} =$$

$$= \sqrt{13^2} = 13$$

Proprietà delle potenze utilizzate.

$\boldsymbol{a^m \cdot a^n = a^{m+n}}$

$\boldsymbol{a^m : a^n = a^{m-n}}$

$\boldsymbol{(a^m)^n = a^{m \cdot n}}$

$$\sqrt{11+\{17+[3\cdot(29-2^3\cdot 2)+9\cdot 5]:(3\cdot 7)+(3^2-1):(4:2)\}}=$$
$$=\sqrt{11+\{17+[3\cdot(29-8\cdot 2)+9\cdot 5]:21+(3^2-1):2\}}=$$
$$=\sqrt{11+\{17+[3\cdot(29-16)+45]:21+(9-1):2\}}=$$
$$=\sqrt{11+\{17+[3\cdot 13+45]:21+8:2\}}=$$
$$=\sqrt{11+\{17+[39+45]:21+4\}}=$$
$$=\sqrt{11+\{17+84:21+4\}}=$$
$$=\sqrt{11+\{17+4+4\}}=$$
$$=\sqrt{11+25}=\sqrt{36}=6$$

$$\sqrt{\{[(3^4:3^2)\cdot(2^2)^2:(3\cdot 2^2)\cdot(40:2^2)]:2^2+30:3^1\}:(80:2^3)}=$$
$$=\sqrt{\{[(3^{4-2})\cdot(2^{2\cdot 2})\quad:(3\cdot 4)\cdot(40:4)]:4+30:3\}:(80:8)}=$$
$$=\sqrt{\{[3^2\cdot 2^4:(3\cdot 2^2)\cdot 10]:4+10\}:10}=$$
$$=\sqrt{\{[3^{2-1}\cdot 2^{4-2}\cdot 10]:4+10\}:10}=$$
$$=\sqrt{\{[3\cdot 4\cdot 10]:4+10\}:10}=$$
$$=\sqrt{\{120:4+10\}:10}=$$
$$=\sqrt{\{30+10\}:10}=$$
$$=\sqrt{40:10}=\sqrt{4}=2$$

Keywords

Matematica, Aritmetica, espressioni, numero irrazionale, irrazionali, numero reale, elevamento a potenza, base, esponente, potenza, proprietà delle potenze, estrazione di radice quadrata, radicali, estrazione di radice, radice quadrata, quadrati perfetti, radice quadrata a mano, I, radq()

Math, Arithmetic, Expression, Irrational number, Real number, Arithmetic Operations, Raise to a Power, base, exponent, power, Solved expressions with raise to a power, square root, roots, sqr(), sqrt()

Matemática, Aritmética, potencia, expresiones, potencias, propiedades de las potencias, Potencias y expresiones, Raíz, Raíz cuadrada

Mathématique, Arithmétique, Expression, Exercices de calcul et expression avec des puissances, propriété des puissances, Racine, Racine carrée

Mathematik, Arithmetik, Potenz, Rechenregeln, Allgemeinere Basen, Allgemeinere Exponenten, Radizierung, Quadrat-Radizierung