Raccolta di espressioni con le quattro operazioni e l'estrazione di radice (a mano). Completi di soluzione guidata. - *Square root Expressions.*

1. $\sqrt{\left[\left(\frac{3}{2}-\frac{1}{3}\right):\left(2-\frac{1}{4}\right)-\left(\frac{1}{3}-\frac{1}{4}\right)\right]:\left(\frac{3}{7}-\frac{2}{21}\right)}^{0,01}$ [1,32] soluzione

2. $\sqrt{\left(1+\frac{2}{3}\right)\cdot\left(1-\frac{2}{5}\right)+\left(1-\frac{3}{7}\right)\cdot\left(\frac{3}{4}+\frac{1}{2}\right)}^{0,01}$ [1,30] soluzione

3. $\sqrt{\sqrt{\left(1-\frac{1}{3}\right)-\frac{5}{12}}+\sqrt{\left(1-\frac{3}{4}\right)-\frac{5}{36}}}$ [0,91] soluzione

4. $\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\left(\frac{3}{8}-\frac{1}{3}\right)\cdot\frac{24}{9}+\frac{1}{16}}}$ [0,45] soluzione

5. $\sqrt{\frac{3}{4}\cdot\left[\left(\frac{2}{3}-\frac{1}{2}\right):\frac{2}{5}+\left(\frac{7}{5}+\frac{1}{4}\right)\cdot\frac{5}{11}\right]+\left(\frac{15}{17}+\frac{2}{17}\right):\frac{2}{3}}$ [1,54] soluzione

6. $\sqrt{\frac{3}{2^2}+\left[\left(\frac{1}{2}+\frac{3}{4}\right)^3:\frac{5}{4}-\left(\frac{5}{4}-\frac{1}{2}\right)^2\right]}$ [1,32] soluzione

7. $\sqrt{\left[\frac{1}{2}+\left(\frac{5}{3}-\frac{2}{5}\right):\frac{19}{3}\right]:\left\{1:\left[\left(\frac{11}{4}\right)^3:\left(\frac{11}{4}\right)^2\right]:\frac{4}{11}\right\}}$ [0,83] soluzione

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

9. $\sqrt{\frac{\left(\frac{7}{8}\cdot\frac{4}{7}+\frac{7}{9}\cdot\frac{9}{14}\right):\frac{1}{3}}{\left(\frac{5}{13}\cdot\frac{13}{10}+\frac{3}{5}\cdot\frac{5}{6}\right):\frac{1}{4}}\cdot\left(\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{3}}$ soluzione

Soluzioni

$$\sqrt{\left[\left(\frac{3}{2}-\frac{1}{3}\right):\left(2-\frac{1}{4}\right)-\left(\frac{1}{3}-\frac{1}{4}\right)\right]:\left(\frac{3}{7}-\frac{2}{21}\right)}=$$

$$=\sqrt{\left[\left(\frac{9-2}{6}\right)\cdot\left(\frac{8-1}{4}\right)-\frac{4-3}{12}\right]:\left(\frac{9-2}{21}\right)}=$$

$$=\sqrt{\left[\frac{7}{6}\cdot\frac{4}{7}-\frac{1}{12}\right]:\left(\frac{7}{21}\right)}=$$

$$=\sqrt{\left[\frac{2}{3}-\frac{1}{12}\right]\cdot\frac{3}{1}}=$$

$$=\sqrt{\left[\frac{8-1}{12}\right]\cdot\frac{3}{1}}=$$

$$=\sqrt{\frac{7}{12}\cdot\frac{3}{1}}=$$

$$=\sqrt{\frac{7}{4}}=\sqrt{1{,}75}$$

$$=\sqrt{1{,}75}\approx 1{,}32\ \ resto\ 0{,}0076$$

$$=\sqrt{\frac{175}{100}}=$$

$$=\frac{\sqrt{25\cdot 7}}{10}=$$

$$=\frac{5\sqrt{7}}{10}=\frac{1}{2}\sqrt{7}$$

```
  /------------
\/1,7500       |1,30
  1            |23x3=69
  075          |262x2=524
   69          |
    600        |
    524        |
     74        |
```

$1{,}32^2+0{,}0074 = 1{,}7424+0{,}0074 = 1{,}75$

$$\sqrt{\left(1+\frac{2}{3}\right)\cdot\left(1-\frac{2}{5}\right)+\left(1-\frac{3}{7}\right)\cdot\left(\frac{3}{4}+\frac{1}{2}\right)}=$$

$$=\sqrt{\frac{3+2}{3}\cdot\frac{5-2}{5}+\frac{7-3}{7}\cdot\frac{3+2}{4}}=$$

$$=\sqrt{\frac{5}{3}\cdot\frac{3}{5}+\frac{4}{7}\cdot\frac{5}{4}}=$$

$$=\sqrt{1+\frac{5}{7}}=$$

$$=\sqrt{\frac{7+5}{7}}=$$

$$=\sqrt{\frac{12}{7}}=\sqrt{1{,}7142}=1{,}30_{resto\,0{,}0242}$$

```
  /-------------
\/1,7142        |1,30
  1             |23x3=69
  071           |260x0=0
   69           |
    242         |
      0         |
    242         |
```

$1{,}3^2+0{,}0242 = 1{,}7142$

$1{,}69+0{,}0242 = 1{,}7142$

$$\sqrt{\sqrt{\left(1-\frac{1}{3}\right)-\frac{5}{12}}+\sqrt{\left(1-\frac{3}{4}\right)-\frac{5}{36}}}=$$

$$=\sqrt{\sqrt{\frac{2}{3}-\frac{5}{12}}+\sqrt{\frac{1}{4}-\frac{5}{36}}}=$$

$$=\sqrt{\sqrt{\frac{8-5}{12}}+\sqrt{\frac{9-5}{36}}}=$$

$$=\sqrt{\sqrt{\frac{3}{12}}+\sqrt{\frac{4}{36}}}=$$

$$=\sqrt{\sqrt{\frac{1}{4}}+\sqrt{\frac{1}{9}}}=$$

$$=\sqrt{\frac{1}{2}+\frac{1}{3}}=$$

$$=\sqrt{\frac{5}{6}}=0{,}8(3)$$

```
  /-------------
\/0,8333        |0,91
  81            |181x1=18
   233          |
   181          |
    52          |
```

$0{,}91^2+0{,}0052 = 0{,}8333$

$0{,}8281+0{,}0052 = 0{,}8333$

$$\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\left(\frac{3}{8}-\frac{1}{3}\right)\cdot\frac{24}{9}+\frac{1}{16}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\left(\frac{9-8}{24}\right)\cdot\frac{24}{9}+\frac{1}{16}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\frac{1}{24}\cdot\frac{24}{9}+\frac{1}{16}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\frac{1}{9}+\frac{1}{16}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\frac{16+9}{144}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\sqrt{\frac{25}{144}}}=$$

$$=\sqrt{\frac{1}{24}+\frac{2}{5}\cdot\frac{5}{12}}=$$

$$=\sqrt{\frac{1}{24}+\frac{1}{6}}=$$

$$=\sqrt{\frac{1+4}{24}}=$$

$$=\sqrt{\frac{5}{24}}=\sqrt{0{,}208(3)}$$

```
  /-------------
\/0,2083        |0,45
   16           |86x6=516
    483         |85x5=425
    425         |
     58         |
```

$0{,}45^2+0{,}0058 = 0{,}2083$

$0{,}2025+0{,}0058 = 0{,}2083$

$$\sqrt{\frac{3}{4}\cdot\left[\left(\frac{2}{3}-\frac{1}{2}\right):\frac{2}{5}+\left(\frac{7}{5}+\frac{1}{4}\right)\cdot\frac{5}{11}\right]+\left(\frac{15}{17}+\frac{2}{17}\right):\frac{2}{3}}$$

$$=\sqrt{\frac{3}{4}\cdot\left[\left(\frac{4-3}{6}\right)\cdot\frac{5}{2}+\left(\frac{28+5}{20}\right)\cdot\frac{5}{11}\right]+\left(\frac{17}{17}\right)\cdot\frac{3}{2}}=$$

$$=\sqrt{\frac{3}{4}\cdot\left[\left(\frac{1}{6}\right)\cdot\frac{5}{2}+\left(\frac{33}{20}\right)\cdot\frac{5}{11}\right]+\frac{3}{2}}=$$

$$=\sqrt{\frac{3}{4}\cdot\left[\frac{5}{12}+\frac{3}{4}\right]+\frac{3}{2}}=$$

$$=\sqrt{\frac{3}{4}\cdot\left[\frac{5+9}{12}\right]+\frac{3}{2}}=$$

$$=\sqrt{\frac{3}{4}\cdot\left[\frac{14}{12}\right]+\frac{3}{2}}=$$

$$=\sqrt{\frac{7}{8}+\frac{3}{2}}=$$

$$=\sqrt{\frac{7+12}{8}}=$$

$$=\sqrt{\frac{19}{8}}=$$

$$=\sqrt{2,37}=1,5_{resto\,0,1}=\sqrt{2,3750}=1,54_{resto\,0,0034}$$

$$\sqrt{\frac{3}{2^2}+\left[\left(\frac{1}{2}+\frac{3}{4}\right)^3:\frac{5}{4}-\left(\frac{5}{4}-\frac{1}{2}\right)^2\right]}=$$

$$=\sqrt{\frac{3}{4}+\left[\left(\frac{2+3}{4}\right)^3:\frac{5}{4}-\left(\frac{5-2}{4}\right)^2\right]}=$$

$$=\sqrt{\frac{3}{4}+\left[\left(\frac{5}{4}\right)^3:\frac{5}{4}-\left(\frac{3}{4}\right)^2\right]}= \qquad \left(\frac{5}{4}\right)^{3-1}=\left(\frac{5}{4}\right)^2=\frac{5^2}{4^2}$$

$$=\sqrt{\frac{3}{4}+\left[\frac{25}{16}-\frac{9}{16}\right]}=$$

$$=\sqrt{\frac{3}{4}+\left[\frac{25-9}{16}\right]}=$$

$$=\sqrt{\frac{3}{4}+1}=$$

$$=\sqrt{\frac{3+4}{4}}=$$

$$=\sqrt{\frac{7}{4}}=\sqrt{1{,}75}=1{,}3_{\ resto\ 0{,}06}=1{,}32_{\ resto\ 0{,}0076}$$

$$\sqrt{\left[\frac{1}{2}+\left(\frac{5}{3}-\frac{2}{5}\right):\frac{19}{3}\right]:\left\{1:\left[\left(\frac{11}{4}\right)^{3}:\left(\frac{11}{4}\right)^{2}\right]:\frac{4}{11}\right\}}=$$

$$=\sqrt{\left[\frac{1}{2}+\left(\frac{25-6}{15}\right):\frac{19}{3}\right]:\left\{1:\left[\left(\frac{11}{4}\right)^{3-2}\right]:\frac{4}{11}\right\}}=$$

$$=\sqrt{\left[\frac{1}{2}+\frac{19}{15}\cdot\frac{3}{19}\right]:\left\{1:\frac{11}{4}\cdot\frac{11}{4}\right\}}=$$

$$=\sqrt{\left[\frac{1}{2}+\frac{1}{5}\right]:\left\{1\cdot\frac{4}{11}\cdot\frac{11}{4}\right\}}=$$

$$=\sqrt{\frac{1}{2}+\frac{1}{5}}=$$

$$=\sqrt{\frac{5+2}{10}}=$$

$$=\sqrt{\frac{7}{10}}=$$

$$=\sqrt{0{,}7000}=0{,}8\ _{resto\ 0{,}06}=0{,}83\ _{resto\ 0{,}0111}$$

```
  /-------------
\/0,7000        |0,83
   64           |163x3=489
   0600         |
    489         |
    111         |
```

$0{,}83^2+0{,}0119 = 0{,}6889+0{,}0111 = 0{,}7$

$$\sqrt{1+\left[\left(\frac{3}{4}\right)^{6}:\left(\frac{3}{4}\right)^{4}\right]^{3}:\left[\frac{3}{4}\cdot\left(\frac{3}{4}\right)^{2}\right]^{2}}=$$

$$=\sqrt{1+\left[\left(\frac{3}{4}\right)^{6-4}\right]^{3}:\left[\left(\frac{3}{4}\right)^{2+1}\right]^{2}}=$$

$$=\sqrt{1+\left[\left(\frac{3}{4}\right)^{2}\right]^{3}:\left[\left(\frac{3}{4}\right)^{3}\right]^{2}}=$$

$$=\sqrt{1+\left(\frac{3}{4}\right)^{2\cdot3}:\left(\frac{3}{4}\right)^{3\cdot2}}=$$

$$=\sqrt{1+\left(\frac{3}{4}\right)^{6}:\left(\frac{3}{4}\right)^{6}}=$$

$$=\sqrt{1+\left(\frac{3}{4}\right)^{6-6}}=$$

$$=\sqrt{1+\left(\frac{3}{4}\right)^{0}}=$$

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

```
   /-------------
\/2,0000         |1,40
  1              |25x5=125
  100            |24x4=96
   96            |281x1=281
    400          |
    281          |
    119          |
```

$1{,}41^2+0{,}0119 = 1{,}9881+0{,}0119 = 2$

$$\sqrt{\frac{\left(\frac{7}{8}\cdot\frac{4}{7}+\frac{7}{9}\cdot\frac{9}{14}\right):\frac{1}{3}}{\left(\frac{5}{13}\cdot\frac{13}{10}+\frac{3}{5}\cdot\frac{5}{6}\right):\frac{1}{4}}\cdot\left(\frac{1}{2}-\frac{1}{3}\right)+\frac{1}{3}}$$

$$=\sqrt{\frac{\left(\frac{1}{2}+\frac{1}{2}\right):\frac{1}{3}}{\left(\frac{1}{2}+\frac{1}{2}\right):\frac{1}{4}}\cdot\left(\frac{1}{6}\right)+\frac{1}{3}}=$$

$$\sqrt{\frac{1:\frac{1}{3}}{1:\frac{1}{4}}\cdot\left(\frac{1}{6}\right)+\frac{1}{3}}=$$

$$=\sqrt{\frac{3}{4}\cdot\left(\frac{1}{6}\right)+\frac{1}{3}}=$$

$$=\sqrt{\frac{1}{8}+\frac{1}{3}}=$$

$$=\sqrt{\frac{11}{24}}=\sqrt{0{,}4587}=0{,}67_{resto\ 0{,}0098}$$

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