

## Raccolta di espressioni con le quattro operazioni e l'estrazione di radice.

Completi di soluzione guidata. - *Square root Expressions.*

1. 
$$\sqrt{\frac{1 - \frac{1}{2}}{\frac{1}{2}}}$$
 1  
[soluzione](#)

2. 
$$\sqrt{\frac{1 - \frac{1}{3}}{2 - \frac{2}{3}} \cdot \frac{1}{2}}$$
  $\frac{1}{2}$   
[SOLUZIONE](#)

3. 
$$\sqrt{\frac{1 - \frac{1}{2}}{1 + \frac{1}{3}} + \frac{3}{8} - \frac{1}{2}}$$
  $\frac{1}{2}$   
[soluzione](#)

4. 
$$\sqrt{\frac{2 - \frac{3}{4}}{2 - \frac{1}{3} - \frac{1}{6}} \cdot \left(1 - \frac{7}{10}\right)}$$
  $\frac{1}{2}$   
[soluzione](#)

5. 
$$\sqrt{2^3 + \frac{1 + \frac{2}{3}}{4 - \frac{3}{7}}}$$
 1  
[soluzione](#)

6. 
$$\sqrt{\frac{\frac{2}{5} \cdot \left(1 + \frac{1}{4}\right)}{1 - \frac{1}{10}} - \frac{1}{9}}$$
  $\frac{2}{3}$   
[soluzione](#)

7. 
$$\sqrt{\frac{\left(\frac{31}{120} + \frac{3}{20}\right) : \left(\frac{5}{4} - \frac{9}{10}\right)}{\left(\frac{5}{2} - \frac{7}{6} - \frac{3}{4}\right) : \left(\frac{11}{8} - \frac{5}{4}\right)}}$$
  $\frac{1}{2}$   
[soluzione](#)

8. 
$$\sqrt{\frac{\left(\frac{5}{2} - \frac{7}{6} - \frac{3}{4}\right) : \left(\frac{11}{8} - \frac{5}{4}\right)}{\left(\frac{31}{120} + \frac{3}{20}\right) : \left(\frac{5}{4} - \frac{9}{10}\right)}}$$
 2  
[soluzione](#)

9. 
$$\sqrt{\frac{1 + \frac{2}{3} \cdot \left(\frac{5}{8} + \frac{1}{2} - \frac{3}{4}\right) - \frac{1}{4} \cdot \frac{1}{2}}{\left\{ \left[ \frac{4}{25} : \left(2 - \frac{8}{5}\right) - \frac{1}{5} \right] : \frac{3}{5} + \frac{1}{3} \right\} \cdot \frac{27}{4}}}$$

$\frac{1}{2}$   
[soluzione](#)

10. 
$$\sqrt{2 \cdot \left( \frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{6}} \right)^2 - \left( \frac{\frac{1}{3} + \frac{1}{4}}{\frac{7}{6}} \right)^2}$$

$\frac{1}{2}$   
[soluzione](#)

## Soluzioni

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$$\sqrt{\frac{1 - \frac{1}{2}}{\frac{1}{2}}} =$$

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

$$\sqrt{\frac{1}{2} \cdot \frac{2}{2}} =$$

$$\sqrt{1} = 1$$

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$$\sqrt{\frac{1 - \frac{1}{3}}{2 - \frac{2}{3}} \cdot \frac{1}{2}} =$$

$$= \sqrt{\frac{\frac{3-1}{3}}{\frac{6-2}{3}} \cdot \frac{1}{2}} =$$

$$= \sqrt{\frac{\frac{2}{3}}{\frac{4}{3}} \cdot \frac{1}{2}} =$$

$$= \sqrt{\frac{2}{3} \cdot \frac{3}{4} \cdot \frac{1}{2}} =$$

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

$$= \frac{\sqrt{1}}{\sqrt{4}} = \frac{1}{2}$$

$$\begin{aligned}
 & \sqrt{\frac{1 - \frac{1}{2}}{1 + \frac{1}{3}} + \frac{3}{8} - \frac{1}{2}} = \\
 & = \sqrt{\frac{\frac{2-1}{2}}{\frac{3+1}{3}} + \frac{3}{8} - \frac{1}{2}} = \\
 & = \sqrt{\frac{1}{2} \cdot \frac{3}{4} + \frac{3}{8} - \frac{1}{2}} = \\
 & = \sqrt{\frac{3}{8} + \frac{3}{8} - \frac{1}{2}} = \\
 & = \sqrt{\frac{3+3-4}{8}} = \sqrt{\frac{2}{8}} = \sqrt{\frac{1}{4}} = \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{\frac{2 - \frac{3}{4}}{2 - \frac{1}{3} - \frac{1}{6}} \cdot \left(1 - \frac{7}{10}\right)} = \\
 & = \sqrt{\frac{\frac{8-3}{4}}{\frac{12-2-1}{6}} \cdot \left(\frac{10-7}{10}\right)} = \\
 & = \sqrt{\frac{5}{4} \cdot \frac{6}{9} \cdot \frac{3}{10}} = \\
 & = \sqrt{\frac{5}{4} \cdot \frac{6}{9} \cdot \frac{3}{10}} = \sqrt{\frac{1}{4}} = \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{2^3 + \frac{1 + \frac{2}{3}}{4 - \frac{3}{7}}} = \\
 & = \sqrt{8 + \frac{\frac{3+2}{3}}{\frac{12-7}{3}}} = \\
 & = \sqrt{8 + \frac{5}{3} \cdot \frac{3}{5}} = \\
 & = \sqrt{8+1} = \sqrt{9} = 3
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{\frac{\frac{2}{5} \cdot \left(1 + \frac{1}{4}\right)}{1 - \frac{1}{10}} - \frac{1}{9}} = \\
 & = \sqrt{\frac{\frac{2}{5} \cdot \left(\frac{4+1}{4}\right)}{\frac{10-1}{10}} - \frac{1}{9}} = \\
 & = \sqrt{\frac{\frac{2}{5} \cdot \frac{5}{4}}{\frac{9}{10}} - \frac{1}{9}} = \\
 & = \sqrt{\frac{1}{2} \cdot \frac{10}{9} - \frac{1}{9}} = \\
 & = \sqrt{\frac{5}{9} - \frac{1}{9}} = \\
 & = \sqrt{\frac{4}{9}} = \frac{2}{3}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{\left(\frac{31}{120} + \frac{3}{20}\right) : \left(\frac{5}{4} - \frac{9}{10}\right)} \\
 & \sqrt{\left(\frac{5}{2} - \frac{7}{6} - \frac{3}{4}\right) : \left(\frac{11}{8} - \frac{5}{4}\right)} \\
 &= \sqrt{\left(\frac{31+18}{120}\right) : \left(\frac{25-18}{20}\right)} \\
 &= \sqrt{\left(\frac{30-14-9}{12}\right) : \left(\frac{11-10}{8}\right)} = \\
 &= \sqrt{\left(\frac{{}^7 49}{{}_6 120}\right) \cdot \left(\frac{20^1}{7_1}\right)} = \\
 &= \sqrt{\left(\frac{7}{{}_3 12}\right) \cdot \left(\frac{8^2}{1}\right)} = \\
 &= \sqrt{\frac{{}^1 7 \cdot 3^1}{{}_2 6 \cdot 14_2}} = \\
 &= \sqrt{\frac{1}{4}} = \frac{1}{2}
 \end{aligned}$$

$$\begin{aligned}
 & \sqrt{\left(\frac{5}{2} - \frac{7}{6} - \frac{3}{4}\right) : \left(\frac{11}{8} - \frac{5}{4}\right)} \\
 & \sqrt{\left(\frac{31}{120} + \frac{3}{20}\right) : \left(\frac{5}{4} - \frac{9}{10}\right)} \\
 &= \sqrt{\left(\frac{30-14-9}{12}\right) : \left(\frac{11-10}{8}\right)} = \\
 &= \sqrt{\left(\frac{31+18}{120}\right) : \left(\frac{25-18}{20}\right)} = \\
 &= \sqrt{\left(\frac{7}{{}_3 12}\right) \cdot \left(\frac{8^2}{1}\right)} = \\
 &= \sqrt{\left(\frac{{}^7 49}{{}_6 120}\right) \cdot \left(\frac{20^1}{7_1}\right)} = \\
 &= \sqrt{\frac{{}^2 14 \cdot 6^2}{{}_1 3 \cdot 7_1}} = \sqrt{4} = 2
 \end{aligned}$$

$$\sqrt{\frac{1 + \frac{2}{3} \cdot \left( \frac{5}{8} + \frac{1}{2} - \frac{3}{4} \right) - \frac{1}{4} \cdot \frac{1}{2}}{\left[ \frac{4}{25} : \left( 2 - \frac{8}{5} \right) - \frac{1}{5} \right] : \frac{3}{5} + \frac{1}{3}} \cdot \frac{27}{4}}$$

$$\sqrt{\frac{1 + \frac{2}{3} \cdot \left( \frac{5+4-6}{8} \right) - \frac{1}{8}}{\left[ \frac{4}{25} : \left( \frac{10-8}{5} \right) - \frac{1}{5} \right] : \frac{3}{5} + \frac{1}{3}} \cdot \frac{27}{4}}$$

$$= \sqrt{\frac{1 + \frac{2}{3} \cdot \frac{3}{8} - \frac{1}{8}}{\left[ \frac{4}{25} : \frac{2}{5} - \frac{1}{5} \right] : \frac{3}{5} + \frac{1}{3}} \cdot \frac{27}{4}} =$$

$$= \sqrt{\frac{1 + \frac{1}{4} - \frac{1}{8}}{\left[ \frac{2}{5} - \frac{1}{5} \right] : \frac{3}{5} + \frac{1}{3}} \cdot \frac{27}{4}} =$$

$$= \sqrt{\frac{\frac{9}{8}}{\left\{ \frac{1}{5} : \frac{3}{5} + \frac{1}{3} \right\} \cdot \frac{27}{4}}} =$$

$$= \sqrt{\frac{\frac{9}{8}}{\left\{ \frac{1}{3} + \frac{1}{3} \right\} \cdot \frac{27}{4}}} =$$

$$= \sqrt{\frac{\frac{9}{8}}{\frac{2}{3} \cdot \frac{27}{4}}} =$$



$$= \sqrt{\frac{9}{8} : \frac{9}{2}} =$$



$$= \sqrt{\frac{1}{4}} = \frac{\sqrt{1}}{\sqrt{4}} = \frac{1}{2}$$


$$\begin{aligned} & \sqrt{2 \cdot \left( \frac{\frac{1}{3} - \frac{1}{4}}{\frac{1}{6}} \right)^2 - \left( \frac{\frac{1}{3} + \frac{1}{4}}{\frac{7}{6}} \right)^2} = \\ & = \sqrt{2 \cdot \left( \frac{\frac{1}{12}}{\frac{1}{6}} \right)^2 - \left( \frac{\frac{7}{12}}{\frac{7}{6}} \right)^2} = \\ & = \sqrt{2 \cdot \left( \frac{1}{12} \cdot \frac{6}{1} \right)^2 - \left( \frac{7}{12} \cdot \frac{6}{7} \right)^2} = \\ & = \sqrt{2 \cdot \left( \frac{1}{2} \right)^2 - \left( \frac{1}{2} \right)^2} = \\ & = \sqrt{2 \cdot \frac{1}{4} - \frac{1}{4}} = \\ & = \sqrt{\frac{1}{2} - \frac{1}{4}} = \\ & = \sqrt{\frac{1}{4}} = \frac{1}{2} \end{aligned}$$





## Keywords

  *Matemática, Aritmética, 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*