FRACCIONES

Problema 8:

Resolver

Hallar la raíz cuadrada de:

$$1-\frac{\frac{0,5}{12}}{\frac{\frac{0,1}{3,6}+\frac{0,5}{24}}{\frac{0,08[3]}{0,15+\frac{7}{12}}}}+7+\frac{5,2}{7}$$

Solución Problema 8:

Hallamos la fracción generatriz de un número decimal exacto:

$$0,5=\frac{5}{10}=\frac{5}{2x5}=\mathbf{\frac{1}{2}}$$

$$0,1=\frac{1}{10}=\mathbf{\frac{1}{10}}$$

$$3,6=\frac{36}{10}=\frac{2x18}{2x5}=\mathbf{\frac{18}{5}}$$

$$0,15=\frac{15}{100}=\frac{5x3}{5x20}=\mathbf{\frac{3}{20}}$$

$$5,2=\frac{52}{10}=\frac{2x26}{2x5}=\mathbf{\frac{26}{5}}$$

Hallamos la fracción generatriz de la expresión decimal periódica mixta: 0,08[3]

$f = 0{,}08333333\ldots$

$100f = 8{,}333333\ldots$

$1000f = 83{,}333333\ldots$

$1000f - 100f = 83{,}333333\ldots - 8{,}333333\ldots = 83 - 8 = 75$

$900f = 75$

$$\mathrm{f} = \frac{75}{900} = \frac{5x15}{5\mathrm{x}180} = \frac{\mathbf{1}}{\mathbf{12}} = 0{,}08333333$$

Sustituyendo los valores en la fracción inicial:

$$1 - \frac{\frac{\mathbf{1}}{\mathbf{2}}}{12} \over \frac{\frac{\mathbf{1}}{\mathbf{10}} + \frac{\mathbf{1}}{\mathbf{2}}}{\frac{\mathbf{18}}{\mathbf{5}}} + 7 + \frac{\frac{\mathbf{26}}{\mathbf{5}}}{7} = \frac{\frac{\mathbf{1}}{\mathbf{12}}}{\frac{\mathbf{3}}{\mathbf{20}} + \frac{7}{12}}$$

$$1-\frac{\frac{1}{24}}{\frac{5}{180}+\frac{1}{48}}+7+\frac{26}{7\text{x}5}=$$

$$\frac{1}{\frac{3x3+5x7}{60}}$$

$$1-\frac{\frac{1}{24}}{\frac{20+15}{720}}+7+\frac{26}{7\text{x}5}=$$

$$\frac{1}{\frac{3x3+5x7}{5x\cancel{12}}}$$

$$1-\frac{\frac{1}{24}}{\frac{35}{720}}+7+\frac{26}{7\text{x}5}=$$

$$\frac{1}{\frac{9+35}{5}}$$

$$1-\frac{\frac{1}{\cancel{24}}}{\frac{35}{30\text{x}\cancel{24}}}+7+\frac{26}{7\text{x}5}=$$

$$\frac{5}{44}$$

FRACCIONES: Problema 8

$$\frac{1-\frac{30}{35}}{\frac{5}{44}} + 7 + \frac{26}{7x5} =$$

$$\frac{\frac{35-30}{35}}{\frac{5}{44}} + 7 + \frac{26}{7x5} =$$

$$\frac{\frac{\cancel{5}}{35}}{\frac{\cancel{5}}{44}} + 7 + \frac{26}{7x5} =$$

$$\frac{44}{35} + 7 + \frac{26}{35} =$$

$$\frac{44 + 7x35 + 26}{35} = \frac{44 + 245 + 26}{35} = \frac{315}{35} = 9$$

Como el problema pide la raíz cuadrada, la solución es

$\sqrt{\mathbf{9}} = \mathbf{3}$