

P000) PERGUNTAS**P001)** Procure descobrir a raiz quadrada exata dos números:

a) 49

b) 81

c) $\frac{1}{16}$ d) $\frac{25}{49}$

e) 0,64

f) 0,36

P002) Qual a raiz quadrada exata dos números:

a) 0,0009 =

b) 0,0016 =

P003) Qual é o valor do número N, sabendo que $N = \sqrt{\frac{196}{400}}$?**P004)** Descubra a fração que representa a raiz quadrada exata de $\frac{121}{169}$.**P005)** A fatoração completa de um número A é $2^{10} \cdot 5^2 \cdot 7^2$. qual é o valor da raiz quadrada de A?**P006)** os números naturais abaixo são números quadrados perfeitos. Determine a raiz quadrada exata desses números.

a) 484

b) 729

c) 676

d) 256

e) 1764

f) 2304

P007) Calcule a raiz quadrada exata dos números a seguir.

a) 4,84

b) 7,29

c) 6,76

d) 2,56

e) 0,1764

f) 23,04

R000) RESPOSTAS**R001) a)**

$$\sqrt{49} = \sqrt{7^2} = 7$$

R001) b)

$$\sqrt{81} = \sqrt{9^2} = 9$$

R001) c)

$$\sqrt{\frac{1}{16}} = \frac{\sqrt{1}}{\sqrt{16}} = \frac{1}{\sqrt{4^2}} = \frac{1}{4}$$

R001) d)

$$\sqrt{\frac{25}{49}} = \frac{\sqrt{5^2}}{\sqrt{7^2}} = \frac{5}{7}$$

R001) e)

$$\sqrt{0,64} = \sqrt{\frac{64}{100}} = \frac{\sqrt{8^2}}{\sqrt{10^2}} = \frac{8}{10} = 0,8$$

R001) f)

$$\sqrt{0,36} = \sqrt{\frac{36}{100}} = \frac{\sqrt{6^2}}{\sqrt{10^2}} = \frac{6}{10} = 0,6$$

R002) a)

$$\sqrt{0,0009} = \sqrt{\frac{9}{10000}} = \frac{\sqrt{3^2}}{\sqrt{10^2 \cdot 10^2}} = \frac{3}{10 \cdot 10} = \frac{3}{100} = 0,03$$

R002) b)

$$\sqrt{0,0016} = \sqrt{\frac{16}{10000}} = \frac{\sqrt{4^2}}{\sqrt{10^2 \cdot 10^2}} = \frac{4}{10 \cdot 10} = \frac{4}{100} = 0,04$$

R003)

$$w = \sqrt{\frac{196}{400}} = \frac{\sqrt{2^2 \cdot 7^2}}{\sqrt{2^3 \cdot 2^2 \cdot 5^2}} = \frac{2 \cdot 7}{2 \cdot 2 \cdot 5} = \frac{14}{20} = \frac{7}{10}$$

$$\begin{array}{r} 196 \overline{) 2} \\ 98 \overline{) 2} \\ 49 \overline{) 7} \\ 7 \overline{) 9} \\ 1 \overline{) 2^2 \cdot 7^2} \end{array}$$

$$\begin{array}{r} 400 \overline{) 2} \\ 200 \overline{) 2} \\ 100 \overline{) 2} \\ 50 \overline{) 2} \\ 25 \overline{) 5} \\ 1 \overline{) 2^2 \cdot 2^2 \cdot 5^2} \end{array}$$

R004)

$$\sqrt{\frac{121}{169}} = \frac{\sqrt{11^2}}{\sqrt{13^2}} = \frac{11}{13}$$

R005)

$$\begin{aligned} \sqrt{A} &= \sqrt{2^{10} \cdot 5^2 \cdot 7^2} \\ &= \sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 5^2 \cdot 7^2} = \\ &= 2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 5 \cdot 7 = 1120 \end{aligned}$$

R006) a)

$$\begin{array}{r} 484 \overline{) 2} \\ 242 \overline{) 2} \\ 121 \overline{) 11} \\ 11 \overline{) 11} \\ 1 \overline{) 2^2 \cdot 11^2} \end{array}$$

$$\sqrt{484} = \sqrt{2^2 \cdot 11^2} = 2 \cdot 11 = 22$$

R006) b)

$$\begin{array}{r|l}
 729 & 3 \\
 243 & 3 \\
 81 & 3 \\
 27 & 3 \\
 9 & 3 \\
 3 & 3 \\
 1 & 3^2 \cdot 3^2 \cdot 3^2
 \end{array}$$

$$\sqrt{729} = \sqrt{3^2 \cdot 3^2 \cdot 3^2} = 3 \cdot 3 \cdot 3 = 27$$

R006) c)

$$\begin{array}{r|l}
 676 & 2 \\
 338 & 2 \\
 169 & 13 \\
 13 & 13 \\
 1 & 2^2 \cdot 13^2
 \end{array}$$

$$\sqrt{676} = \sqrt{2^2 \cdot 13^2} = 2 \cdot 13 = 26$$

R006) d)

$$\begin{array}{r|l}
 256 & 2 \\
 128 & 2 \\
 64 & 2 \\
 32 & 2 \\
 16 & 2 \\
 8 & 2 \\
 4 & 2 \\
 2 & 2 \\
 1 & 2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2
 \end{array}$$

$$\sqrt{256} = \sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2} = 2 \cdot 2 \cdot 2 \cdot 2 = 16$$

R006) e)

$$\begin{array}{r|l}
 1764 & 2 \\
 882 & 2 \\
 441 & 3 \\
 147 & 3 \\
 49 & 7 \\
 7 & 7 \\
 1 & 2^2 \cdot 3^2 \cdot 7^2
 \end{array}$$

$$\sqrt{1764} = \sqrt{2^2 \cdot 3^2 \cdot 7^2} = 2 \cdot 3 \cdot 7 = 42$$

R006) f)

$$\begin{array}{r|l}
 2304 & 2 \\
 1152 & 2 \\
 576 & 2 \\
 288 & 2 \\
 144 & 2 \\
 72 & 2 \\
 36 & 2 \\
 18 & 2 \\
 9 & 3 \\
 3 & 3 \\
 1 & 2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 3^2
 \end{array}$$

$$\sqrt{2304} = \sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 3^2} = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 = 48$$

R007) a)

$$\begin{array}{r|l}
 484 & 2 \\
 242 & 2 \\
 121 & 11 \\
 11 & 11 \\
 1 & 1 \\
 \hline
 & 2^2 \cdot 11^2
 \end{array}$$

$$\sqrt{484} = \sqrt{2^2 \cdot 11^2} = 2 \cdot 11 = 22$$

$$\sqrt{4,84} = \sqrt{\frac{484}{100}} = \frac{\sqrt{22^2}}{\sqrt{10^2}} = \frac{22}{10} = 2,2$$

R007) b)

$$\begin{array}{r|l}
 729 & 3 \\
 243 & 3 \\
 81 & 3 \\
 27 & 3 \\
 9 & 3 \\
 3 & 3 \\
 1 & 1 \\
 \hline
 & 3^2 \cdot 3^2 \cdot 3^2
 \end{array}$$

$$\sqrt{729} = \sqrt{3^2 \cdot 3^2 \cdot 3^2} = 3 \cdot 3 \cdot 3 = 27$$

$$\sqrt{7,29} = \sqrt{\frac{729}{100}} = \frac{\sqrt{27^2}}{\sqrt{10^2}} = \frac{27}{10} = 2,7$$

R007) c)

$$\begin{array}{r|l}
 676 & 2 \\
 338 & 2 \\
 169 & 13 \\
 13 & 13 \\
 1 & \\
 \hline
 & 2^2 \cdot 13^2
 \end{array}$$

$$\sqrt{676} = \sqrt{2^2 \cdot 13^2} = 2 \cdot 13 = 26$$

$$\sqrt{6,76} = \sqrt{\frac{676}{100}} = \frac{\sqrt{26^2}}{\sqrt{10^2}} = \frac{26}{10} = 2,6$$

R007) d)

$$\begin{array}{r|l}
 256 & 2 \\
 128 & 2 \\
 64 & 2 \\
 32 & 2 \\
 16 & 2 \\
 8 & 2 \\
 4 & 2 \\
 2 & 2 \\
 1 & \\
 \hline
 & 2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2
 \end{array}$$

$$\sqrt{256} = \sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2} = 2 \cdot 2 \cdot 2 \cdot 2 = 16$$

$$\sqrt{2,56} = \sqrt{\frac{256}{100}} = \frac{\sqrt{16^2}}{\sqrt{10^2}} = \frac{16}{10} = 1,6$$

R007) e)

$$\begin{array}{r|l}
 1764 & 2 \\
 882 & 2 \\
 441 & 3 \\
 147 & 3 \\
 49 & 7 \\
 7 & 7 \\
 1 & \\
 \hline
 & 2^2 \cdot 3^2 \cdot 7^2
 \end{array}$$

$$\sqrt{1764} = \sqrt{2^2 \cdot 3^2 \cdot 7^2} = 2 \cdot 3 \cdot 7 = 42$$

$$\sqrt{0,1764} = \sqrt{\frac{1764}{10000}} = \frac{\sqrt{42^2}}{\sqrt{10^2 \cdot 10^2}} = \frac{42}{10 \cdot 10} = \frac{42}{100} = 0,42$$

R007) f)

$$\begin{array}{r|l}
 2304 & 2 \\
 1152 & 2 \\
 576 & 2 \\
 288 & 2 \\
 144 & 2 \\
 72 & 2 \\
 36 & 2 \\
 18 & 2 \\
 9 & 3 \\
 3 & 3 \\
 1 & \\
 \hline
 & 2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 3^2
 \end{array}$$

$$\sqrt{2304} = \sqrt{2^2 \cdot 2^2 \cdot 2^2 \cdot 2^2 \cdot 3^2} = 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 = 48$$

$$\sqrt{23,04} = \sqrt{\frac{2304}{100}} = \frac{\sqrt{48^2}}{\sqrt{10^2}} = \frac{48}{10} = 4,8$$