

ex2

$$1. \frac{2002}{7 \cdot 22} = \frac{2002}{154}$$

$$I \quad 2002 = 13 \cdot 154$$

$$\log_{154} 2002 = 2.3$$

$$\frac{2002}{7 \cdot 23} = \frac{2002}{161}$$

$$I \quad 2002 = 12 \cdot 161 + 70$$

$$161 = 2 \cdot 70 + 21$$

$$70 = 3 \cdot 21 + 7$$

$$21 = 3 \cdot 7$$

$$\frac{2002}{161} = [12; 2; 3; 3]$$

$$\begin{aligned} II \quad \frac{2002}{161} &= 12 + \frac{70}{161} = 12 + \frac{1}{\left(\frac{161}{70}\right)} = 12 + \frac{1}{2 + \frac{21}{70}} = 12 + \frac{1}{2 + \frac{1}{\left(\frac{70}{21}\right)}} \\ &= 12 + \frac{1}{2 + \frac{1}{3 + \frac{7}{21}}} = 12 + \frac{1}{2 + \frac{1}{3 + \frac{1}{3}}} = [12; 2; 3; 3] \end{aligned}$$

$$\text{Orbem: } [12; 2; 3; 3]$$

$$\begin{aligned} 2. \sqrt{7 \cdot 22} &= \sqrt{154} = 12 + \sqrt{154} - 12 = 12 + \frac{1}{\left(\frac{(\sqrt{154} + 12)}{(\sqrt{154} - 12)(\sqrt{154} + 12)}\right)} = \\ &= 12 + \frac{1}{\left(\frac{\sqrt{154} + 12}{10}\right)} = 12 + \frac{1}{2 + \frac{(\sqrt{154} + 12 - 20)}{10}} = \\ &= 12 + \frac{1}{2 + \frac{(\sqrt{154} - 8)}{10}} = 12 + \frac{1}{2 + \frac{1}{\left(\frac{10}{(\sqrt{154} - 8)}\right)}} = 12 + \frac{1}{2 + \frac{1}{\left(\frac{10(\sqrt{154} + 8)}{90}\right)}} = \end{aligned}$$

$$12 + \frac{1}{2 + \frac{1}{\left(\frac{\sqrt{154}+8}{9}\right)}} = 12 + \frac{1}{2 + \frac{1}{2 + \left(\frac{\sqrt{154}+8-18}{9}\right)}} = 12 + \frac{1}{2 + \frac{1}{2 + \left(\frac{\sqrt{154}-10}{9}\right)}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{\left(\frac{9(\sqrt{154}+10)}{54}\right)}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{\left(\frac{\sqrt{154}+10}{6}\right)}}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \left(\frac{\sqrt{154}-8}{6}\right)}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{\left(\frac{6(\sqrt{154}+8)}{90}\right)}}}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{\left(\frac{\sqrt{154}+8}{15}\right)}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \left(\frac{\sqrt{154}+7}{15}\right)}}}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \left(\frac{15(\sqrt{154}+7)}{105}\right)}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{\left(\frac{\sqrt{154}+7}{2}\right)}}}}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{9 + \frac{1}{2 + \left(\frac{\sqrt{154}-7}{2}\right)}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \left(\frac{7(\sqrt{154}+7)}{105}\right)}}}}}$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{15}(\sqrt{154}-8)}}}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{15}(\sqrt{154}-8)}}}}}}} =$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{90}(\sqrt{154}+8)}}}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{6}(\sqrt{154}+8)}}}}}}} =$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{3 + \frac{1}{\frac{1}{6}(\sqrt{154}-10)}}}}}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{9}(\sqrt{154}+10)}}}}}}} =$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{2 + \frac{1}{\frac{1}{9}(\sqrt{154}-8)}}}}}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{2 + \frac{1}{\frac{1}{10}(\sqrt{154}+8)}}}}}}}}} =$$

$$= 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{2 + \frac{1}{\frac{1}{10}(\sqrt{154}-12)}}}}}}}}} = 12 + \frac{1}{2 + \frac{1}{2 + \frac{1}{3 + \frac{1}{1 + \frac{1}{2 + \frac{1}{1 + \frac{1}{\frac{1}{2 + \frac{1}{\frac{1}{10}(\sqrt{154}-12)}}}}}}}}} =$$

$$= [12, 2, 2, 3, 12, 1, 3, 2, 2, 24]$$