

Час број 12: Операције са реалним бројевима

$$\sqrt{a \cdot b} = \sqrt{a} \cdot \sqrt{b}$$

$$\sqrt{49 \cdot 25} = \sqrt{49} \cdot \sqrt{25} = 7 \cdot 5 = 35$$

$$\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$$

$$\sqrt{8100} = \sqrt{81 \cdot 100} = \sqrt{81} \cdot \sqrt{100} = 9 \cdot 10 = 90$$

$$\sqrt{0,0144} = \sqrt{\frac{144}{10000}} = \frac{\sqrt{144}}{\sqrt{10000}} = \frac{12}{100} = 0,12$$

Пример 1: Одредити вредност квадратног корена

а) $\sqrt{484} = ?$	<table style="border-collapse: collapse;"> <tr><td style="padding-right: 5px;">484</td><td style="padding-right: 5px;">2</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">242</td><td style="padding-right: 5px;">2</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">121</td><td style="padding-right: 5px;">11</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">11</td><td style="padding-right: 5px;">11</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">1</td><td></td><td></td></tr> </table>	484	2)	242	2)	121	11)	11	11)	1			$484 = 2 \cdot 2 \cdot 11 \cdot 11$ $484 = 2^2 \cdot 11^2$ $\sqrt{484} = \sqrt{2^2 \cdot 11^2} = \sqrt{2^2} \cdot \sqrt{11^2} = 2 \cdot 11 = 22$
484	2)															
242	2)															
121	11)															
11	11)															
1																	

б) $\sqrt{900} = ?$	<table style="border-collapse: collapse;"> <tr><td style="padding-right: 5px;">900</td><td style="padding-right: 5px;">2</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">450</td><td style="padding-right: 5px;">2</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">225</td><td style="padding-right: 5px;">3</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">75</td><td style="padding-right: 5px;">3</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">25</td><td style="padding-right: 5px;">5</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">5</td><td style="padding-right: 5px;">5</td><td style="font-size: 2em;">)</td></tr> <tr><td style="padding-right: 5px;">1</td><td></td><td></td></tr> </table>	900	2)	450	2)	225	3)	75	3)	25	5)	5	5)	1			$900 = 2^2 \cdot 3^2 \cdot 5^2$ $\sqrt{900} = \sqrt{2^2 \cdot 3^2 \cdot 5^2} = 2 \cdot 3 \cdot 5 = 30$
900	2)																					
450	2)																					
225	3)																					
75	3)																					
25	5)																					
5	5)																					
1																							

Пример 2: Растави поткорену величину на чиниоце па израчунај

$$\sqrt{8} = \sqrt{4 \cdot 2} = \sqrt{4} \cdot \sqrt{2} = 2 \cdot \sqrt{2} = 2\sqrt{2}$$

$$\sqrt{18} = \sqrt{9 \cdot 2} = \sqrt{9} \cdot \sqrt{2} = 3 \cdot \sqrt{2} = 3\sqrt{2}$$

$$\sqrt{27} = \sqrt{9 \cdot 3} = \sqrt{9} \cdot \sqrt{3} = 3 \cdot \sqrt{3} = 3\sqrt{3}$$

$$\sqrt{45} = \sqrt{9 \cdot 5} = \sqrt{9} \cdot \sqrt{5} = 3 \cdot \sqrt{5} = 3\sqrt{5}$$

$$\sqrt{48} = \sqrt{16 \cdot 3} = \sqrt{16} \cdot \sqrt{3} = 4 \cdot \sqrt{3} = 4\sqrt{3}$$

$$\sqrt{50} = \sqrt{25 \cdot 2} = \sqrt{25} \cdot \sqrt{2} = 5 \cdot \sqrt{2} = 5\sqrt{2}$$

$$\sqrt{98} = \sqrt{49 \cdot 2} = \sqrt{49} \cdot \sqrt{2} = 7 \cdot \sqrt{2} = 7\sqrt{2}$$

$$\sqrt{12} = \sqrt{4 \cdot 3} = \sqrt{4} \cdot \sqrt{3} = 2 \cdot \sqrt{3} = 2\sqrt{3}$$

$$\sqrt{125} = \sqrt{25 \cdot 5} = \sqrt{25} \cdot \sqrt{5} = 5 \cdot \sqrt{5} = 5\sqrt{5}$$

$$\begin{aligned} \sqrt{72} &= \sqrt{2^2 \cdot 3^2 \cdot 2} = \sqrt{2^2} \cdot \sqrt{3^2} \cdot \sqrt{2} \\ &= 2 \cdot 3 \cdot \sqrt{2} = 6\sqrt{2} \end{aligned}$$

$$\begin{aligned} \sqrt{108} &= \sqrt{2^2 \cdot 3^2 \cdot 3} = \sqrt{3^2} \cdot \sqrt{2^2} \cdot \sqrt{3} \\ &= 3 \cdot 2 \cdot \sqrt{3} = 6\sqrt{3} \end{aligned}$$

72	2)
36	2)
18	2	
9	3)
3	3)
1		

108	2)
54	2)
27	3)
9	3)
3	3	
1		