

- Приоритетна настава за завршни  
испити из математике -

$$a^n \cdot a^m = a^{n+m} \quad a^n : a^m = a^{n-m} \quad \frac{a^4}{a^m} = a^{4-m}$$

$$a^n \cdot b^m = (a \cdot b)^m, \quad a^n : b^m = (a : b)^m, \quad \frac{a^4}{b^m} = \left(\frac{a}{b}\right)^m$$

$$\sqrt{a^2} = |a|$$

203) а)  $2^3 - (0,5)^2 = 8 - 0,25 = 7,75$   
 б)  $(5^2 - 3^3)^2 = (25 - 27)^2 = (-2)^2 = 4$   
 в)  $\sqrt{144} + 2\sqrt{81} - \sqrt{112} = 12 + 2 \cdot 9 - 11 = 19$

207)  $A = \frac{0,5^{15} : 0,5^3}{0,5 \cdot (0,5^2)^5} = \frac{0,5^{15-3}}{0,5 \cdot 0,5^{2 \cdot 5}} = \frac{0,5^{12}}{0,5 \cdot 0,5^{10}} = \frac{0,5^{12}}{0,5^{1+10}} = \frac{0,5^{12}}{0,5^{11}} = 0,5^{12-11} = 0,5$

208)   $\sqrt{(-2)^2} = \sqrt{2^2} \quad \sqrt{4} \stackrel{?}{=} \sqrt{4} \quad 2=2$   
  $(2^2)^3 = 2^5 \quad 2^{2 \cdot 3} \stackrel{?}{=} 2^5 \quad 2^6 \neq 2^5$   
  $(-2)^3 \cdot (-2)^5 = 2^8 \quad (-2)^3 \cdot (-2)^5 \stackrel{?}{=} 2^8$   
 $-2^3 \cdot (-2^5) \stackrel{?}{=} 2^8 \quad 2^{3+5} = 2^8$   
  $\sqrt{(-2)^2} = 2 \quad |(-2)| = 2$

209) а)  $\frac{(-2)^2 \cdot 4^2}{-2^2 \cdot 2^3} - \frac{1}{4} \sqrt{16} = \frac{2^2 \cdot (2^2)^2}{-2^{2+3}} - \frac{1}{4} \cdot 4 = \frac{2^2 \cdot 2^{2 \cdot 2}}{-2^5} - 1 = \frac{2^2 \cdot 2^4}{-2^5} - 1 = -\frac{2^{2+4}}{2^5} - 1 =$   
 $-\frac{2^6}{2^5} - 1 = -2^{6-5} - 1 = -2 - 1 = -3$

б)  $\left(\frac{2}{3}\right)^2 - \frac{(-1)^3}{3^2} = \frac{4}{9} - \frac{(-1)}{9} = \frac{4}{9} + \frac{1}{9} = \frac{5}{9}$

в)  $\sqrt{\frac{4}{25}} - \sqrt{\frac{(-2)^2}{5^2}} = \frac{2}{5} - \frac{2}{5} = 0$

210)  $(-0,1a^3)^2 \cdot 1000 = (-0,1)^2 \cdot a^{3 \cdot 2} \cdot 1000 = 0,01 \cdot a^6 \cdot 1000 = 10a^6$

211)  $\frac{(x \cdot y)^4 \cdot (x^3 y^4)}{(x^2 \cdot y^4)^2} = \frac{x^4 y^4 \cdot x^3 y^4}{x^{2 \cdot 2} y^{4 \cdot 2}} = \frac{x^{4+3} y^{4+4}}{x^4 y^8} = \frac{x^7 y^8}{x^4 y^8} = x^{7-4} y^{8-8} = x^3 y^0 = x^3$

212)  $A = \frac{7^{10} (7^3)^2}{(7^9 \cdot 7^2)^2} = \frac{7^{10} \cdot 7^{3 \cdot 2}}{(7^9 \cdot 7^2)^2} = \frac{7^{10} \cdot 7^6}{(7^7)^2} = \frac{7^{10+6}}{7^{7 \cdot 2}} = \frac{7^{16}}{7^{14}} = 7^{16-14} = 7^2$

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

Зонали: од 57 до 65 задатка

$$350) \sqrt{(2-2\sqrt{2})^2} + \left(\frac{\sqrt{2}-1}{3} - \sqrt{2}\right) \cdot \frac{81 \cdot 27^2}{(3^3)^3} =$$

$$|2-2\sqrt{2}| + \frac{\sqrt{2}-1-3\sqrt{2}}{3} \cdot \frac{3^4 \cdot (3^3)^2}{3^{3 \cdot 3}} = -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot \frac{3^4 \cdot 3^{3 \cdot 2}}{3^9}$$

$$\boxed{2-2\sqrt{2} < 0} \Rightarrow -(2-2\sqrt{2}) = -2+2\sqrt{2}$$

$$= -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot \frac{3^4 \cdot 3^6}{3^9} = -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot \frac{3^{4+6}}{3^9} =$$

$$= -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot \frac{3^{10}}{3^9} = -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot 3^{10-9} = -2+2\sqrt{2} + \frac{-1-2\sqrt{2}}{3} \cdot 3$$

$$= -2+2\sqrt{2} + (-1-2\sqrt{2}) = -2+2\sqrt{2} - 1 - 2\sqrt{2} = -3$$

$$351) \sqrt{\frac{-a^3 a^5}{a \cdot (a^2)^3}} = \left| \frac{-a^3 a^5}{a \cdot a^{2 \cdot 3}} \right| = \frac{a^{3+5}}{a \cdot a^6} = \frac{a^8}{a^{1+6}} = \frac{a^8}{a^7} = \frac{a^{8-7}}{a} = \frac{a}{a} = 1$$

$$a = 1234 > 0$$

$$352) M = \frac{3\sqrt{27} - \sqrt{80} - 4\sqrt{108} + 2\sqrt{20}}{3\sqrt{15} \cdot \sqrt{5}} = \frac{3 \cdot 3\sqrt{3} - 4\sqrt{5} - 4 \cdot 6\sqrt{3} + 2 \cdot 2\sqrt{5}}{3 \cdot \sqrt{15} \cdot \sqrt{5}} = \frac{9\sqrt{3} - 4\sqrt{5} - 24\sqrt{3} + 4\sqrt{5}}{3\sqrt{75}}$$

$$= \frac{-15\sqrt{3}}{3 \cdot 5\sqrt{3}} = \frac{-15\sqrt{3}}{15\sqrt{3}} = -1$$

$$\sqrt{27} = \sqrt{3^2 \cdot 3} = 3\sqrt{3}, \quad \sqrt{80} = \sqrt{4^2 \cdot 5} = 4\sqrt{5}, \quad \sqrt{108} = \sqrt{6^2 \cdot 3} = 6\sqrt{3}$$

$$\begin{array}{r} 27 \overline{) 3} \\ 9 \overline{) 3} \\ 3 \overline{) 3} \end{array}$$

$$\begin{array}{r} 80 \overline{) 2} > 4 \\ 40 \overline{) 2} > 4 \\ 20 \overline{) 2} > 4 \\ 10 \overline{) 2} > 4 \\ 5 \overline{) 5} \end{array}$$

$$\begin{array}{r} 108 \overline{) 2} \\ 54 \overline{) 2} \\ 27 \overline{) 3} \\ 9 \overline{) 3} \\ 3 \overline{) 3} \end{array} \left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \begin{array}{l} 6 \\ 6 \\ 6 \end{array}$$

$$\sqrt{20} = \sqrt{2^2 \cdot 5} = 2\sqrt{5}$$

$$\begin{array}{r} 20 \overline{) 2} \\ 10 \overline{) 2} \\ 5 \overline{) 5} \end{array}$$