Culegere de exerciții cu radicali (Clasa a VII-a)

Conform programei școlare de matematică – România

Total: 300 de exerciții (adunare, scădere, înmulțire, împărțire, ridicare la putere și exerciții combinate)

SETUL 1: Operații de bază și combinate (100 de exerciții)

I. Scoaterea și introducerea factorilor sub radical (1–15)

Scoateți factorii de sub radical:

1. $\sqrt{18}$ **3.** $\sqrt{72}$ **5.** $\sqrt{125}$ **7.** $\sqrt{300}$

2. $\sqrt{45}$ **4.** $\sqrt{98}$ **6.** $\sqrt{200}$ **8.** $\sqrt{245}$

Introduceți factorii sub radical:

9. $2\sqrt{3}$ **11.** $3\sqrt{7}$ **13.** $6\sqrt{3}$ **15.** $10\sqrt{6}$

10. $5\sqrt{2}$ **12.** $4\sqrt{5}$ **14.** $7\sqrt{2}$

II. Adunarea și scăderea radicalilor (16–40)

Calculați:

16. $\sqrt{2} + 3\sqrt{2}$

17. $5\sqrt{3} - 2\sqrt{3}$

18. $4\sqrt{5} + 6\sqrt{5} - 3\sqrt{5}$

19. $\sqrt{8} + \sqrt{18}$

20. $\sqrt{27} - \sqrt{12}$

21. $\sqrt{50} + \sqrt{32} - \sqrt{8}$

22. $2\sqrt{45} - 3\sqrt{20} + \sqrt{80}$

23. $\sqrt{75} + \sqrt{108} - \sqrt{27}$

24. $3\sqrt{24} - 2\sqrt{54} + 5\sqrt{6}$

25. $\sqrt{125} - \sqrt{45} + \sqrt{20}$

26. $4\sqrt{18} - 3\sqrt{50} + 2\sqrt{98}$

27. $\sqrt{63} + \sqrt{28} - \sqrt{112}$

28. $2\sqrt{48} - 5\sqrt{12} + 3\sqrt{75}$

29. $\sqrt{99} - \sqrt{44} + \sqrt{176}$

30. $3\sqrt{150} - 4\sqrt{54} + 2\sqrt{24}$

31. $\sqrt{80} + \sqrt{125} - \sqrt{245}$

32. $5\sqrt{32} - 2\sqrt{72} + 3\sqrt{128}$

33. $\sqrt{147} + \sqrt{300} - \sqrt{192}$

34. $6\sqrt{8} - 4\sqrt{50} + 3\sqrt{18}$

35. $\sqrt{216} - \sqrt{96} + \sqrt{150}$

36. $\sqrt{1,44} + \sqrt{2,25}$

37. $\sqrt{0,49} - \sqrt{0,16}$

38. $\sqrt{0,09} + \sqrt{1,21} - \sqrt{0,64}$

39. $\sqrt{\frac{16}{25}} + \sqrt{\frac{9}{25}}$

40. $\sqrt{\frac{81}{16}} - \sqrt{\frac{25}{16}} + \sqrt{\frac{1}{4}}$

III. Înmulțirea radicalilor (41–60)

Efectuați înmulțirile:

41. $\sqrt{2} \cdot \sqrt{8}$

42. $\sqrt{3} \cdot \sqrt{12}$

43. $\sqrt{5} \cdot \sqrt{20}$

44. $2\sqrt{3} \cdot 4\sqrt{3}$

45. $3\sqrt{2} \cdot 5\sqrt{6}$

46. $-2\sqrt{7} \cdot 3\sqrt{7}$

47. $\sqrt{6} \cdot \sqrt{10} \cdot \sqrt{15}$

48. $2\sqrt{5} \cdot 3\sqrt{2} \cdot \sqrt{10}$

49. $\sqrt{2} \cdot (\sqrt{8} + \sqrt{18})$

50. $\sqrt{3} \cdot (2\sqrt{12} - 3\sqrt{27})$

51. $2\sqrt{5} \cdot (3\sqrt{5} - \sqrt{20} + 4\sqrt{45})$

52. $(\sqrt{3} + 1)(\sqrt{3} - 1)$

53. $(\sqrt{5} + \sqrt{2})(\sqrt{5} - \sqrt{2})$

54. $(2\sqrt{3} + 1)(2\sqrt{3} - 1)$

55. $(\sqrt{2} + 3)(\sqrt{8} - 1)$

56. $(\sqrt{6} - \sqrt{2})(\sqrt{6} + \sqrt{3})$

57. $(3\sqrt{2} - 2\sqrt{3})(2\sqrt{2} + \sqrt{3})$

58. $(\sqrt{7} + 2)^2$

59. $(2\sqrt{5} - 3)^2$

60. $(\sqrt{3} + \sqrt{6})^2$

IV. Împărțirea radicalilor (61–75)

Efectuați împărțirile:

61. $\sqrt{50} : \sqrt{2}$

62. $\sqrt{75} : \sqrt{3}$

63. $\sqrt{128} : \sqrt{2}$

64. $12\sqrt{6} : 3\sqrt{2}$

65. $15\sqrt{15} : 5\sqrt{3}$

66. $-24\sqrt{18} : 6\sqrt{6}$

67. $\sqrt{72} : \sqrt{8}$

68. $\sqrt{180} : \sqrt{5}$

69. $(6\sqrt{12} - 9\sqrt{27}) : 3\sqrt{3}$

70. $(10\sqrt{50} + 15\sqrt{18} - 5\sqrt{8}) : 5\sqrt{2}$

71. $\dfrac{\sqrt{45} + \sqrt{20}}{\sqrt{5}}$

72. $\dfrac{4\sqrt{24} - 6\sqrt{54}}{2\sqrt{6}}$

73. $\dfrac{\sqrt{98} - \sqrt{32}}{\sqrt{2}}$

74. $\dfrac{8\sqrt{12} + 4\sqrt{48}}{4\sqrt{3}}$

75. $\dfrac{18\sqrt{20} - 12\sqrt{45}}{6\sqrt{5}}$

V. Ridicarea la putere a radicalilor (76–88)

Calculați:

76. $(\sqrt{7})^2$

77. $(3\sqrt{2})^2$

78. $(2\sqrt{5})^2$

79. $(-\sqrt{11})^2$

80. $(-4\sqrt{3})^2$

81. $(\sqrt{2})^3$

82. $(\sqrt{3})^3$

83. $(2\sqrt{2})^3$

84. $(\sqrt{5})^4$

85. $(\sqrt{2})^6$

86. $(-\sqrt{3})^5$

87. $\left(\dfrac{\sqrt{6}}{2}\right)^2$

88. $\left(\dfrac{2\sqrt{3}}{5}\right)^2$

VI. Exerciții combinate – Setul 1 (89–100)

Calculați:

89. $(\sqrt{2}+\sqrt{8})^2-\sqrt{32}$

90. $(3\sqrt{5}-2)^2+12\sqrt{5}$

91. $\dfrac{(\sqrt{6})^2+\sqrt{18}\cdot\sqrt{2}}{\sqrt{36}}$

92. $(\sqrt{12}+\sqrt{27}):\sqrt{3}+(2\sqrt{2})^2$

93. $2\cdot(\sqrt{7}-1)(\sqrt{7}+1)-(\sqrt{3})^4$

94. $\sqrt{48}-\dfrac{12}{\sqrt{3}}+(\sqrt{5}+1)^2-2\sqrt{5}$

95. $(2\sqrt{6}-3\sqrt{2}):\sqrt{2}+(\sqrt{3}-2)^2$

96. $\dfrac{\sqrt{200}-\sqrt{72}}{\sqrt{2}}-(3\sqrt{2})^2$

97. $(\sqrt{10}+\sqrt{5})(\sqrt{10}-\sqrt{5})+(\sqrt{5})^3:\sqrt{5}$

98. $3\cdot(\sqrt{2})^4-2\sqrt{18}+\sqrt{50}:\sqrt{2}$

99. $\left(\sqrt{28}-\sqrt{63}\right):\sqrt{7}+(4-\sqrt{2})^2$

100. $\dfrac{(2\sqrt{3})^2+\sqrt{75}:\sqrt{3}-(\sqrt{11})^2}{\sqrt{4}}$

SETUL 2: Consolidare pe tipuri de operații (100 de exerciții)

I. Scoaterea și introducerea factorilor sub radical (1–15)

Scoateți factorii de sub radical:

1. $\sqrt{24}$ **3.** $\sqrt{80}$ **5.** $\sqrt{147}$ **7.** $\sqrt{242}$

2. $\sqrt{54}$ **4.** $\sqrt{112}$ **6.** $\sqrt{162}$ **8.** $\sqrt{288}$

Introduceți factorii sub radical:

9. $3\sqrt{5}$ **11.** $6\sqrt{2}$ **13.** $8\sqrt{3}$ **15.** $11\sqrt{5}$

10. $4\sqrt{3}$ **12.** $5\sqrt{6}$ **14.** $9\sqrt{2}$

II. Adunarea și scăderea radicalilor (16–40)

Calculați:

16. $4\sqrt{7}+5\sqrt{7}-2\sqrt{7}$

17. $9\sqrt{6}-11\sqrt{6}+4\sqrt{6}$

18. $\sqrt{12}+\sqrt{48}$

19. $\sqrt{45}-\sqrt{20}$

20. $\sqrt{32}+\sqrt{72}-\sqrt{50}$

21. $3\sqrt{27}-2\sqrt{75}+\sqrt{108}$

22. $\sqrt{63}+\sqrt{175}-\sqrt{28}$

23. $4\sqrt{24}-3\sqrt{96}+2\sqrt{150}$

24. $\sqrt{98}-\sqrt{18}+\sqrt{162}$

25. $2\sqrt{80}+3\sqrt{45}-4\sqrt{125}$

26. $\sqrt{54}+\sqrt{216}-\sqrt{294}$

27. $5\sqrt{44}-3\sqrt{99}+2\sqrt{176}$

28. $\sqrt{147}-\sqrt{48}+\sqrt{192}$

29. $3\sqrt{72}-4\sqrt{128}+5\sqrt{8}$

30. $\sqrt{180}+\sqrt{245}-\sqrt{320}$

31. $6\sqrt{20}-2\sqrt{125}+3\sqrt{45}$

32. $\sqrt{108}+\sqrt{147}-\sqrt{363}$

33. $2\sqrt{162}-3\sqrt{50}+4\sqrt{32}$

34. $\sqrt{252}-\sqrt{112}+\sqrt{63}$

35. $4\sqrt{75}-5\sqrt{12}-2\sqrt{243}$

36. $\sqrt{1,69}-\sqrt{0,36}$

37. $\sqrt{0,81}+\sqrt{1,96}-\sqrt{0,25}$

38. $\sqrt{2,56}-\sqrt{0,04}+\sqrt{0,64}$

39. $\sqrt{\dfrac{36}{49}}+\sqrt{\dfrac{4}{49}}$

40. $\sqrt{\dfrac{121}{9}}-\sqrt{\dfrac{64}{9}}+\sqrt{\dfrac{1}{9}}$

III. Înmulțirea radicalilor (41–60)

Efectuați înmulțirile:

41. $\sqrt{3}\cdot\sqrt{27}$

42. $\sqrt{6}\cdot\sqrt{24}$

43. $\sqrt{7}\cdot\sqrt{28}$

44. $3\sqrt{5}\cdot 2\sqrt{5}$

45. $-4\sqrt{6}\cdot 3\sqrt{6}$

46. $2\sqrt{3}\cdot 5\sqrt{15}$

47. $\sqrt{14}\cdot\sqrt{21}\cdot\sqrt{6}$

48. $3\sqrt{3}\cdot 2\sqrt{5}\cdot\sqrt{15}$

49. $\sqrt{5} \cdot (\sqrt{20} + \sqrt{45})$

50. $\sqrt{6} \cdot (3\sqrt{24} - 2\sqrt{54})$

51. $3\sqrt{2} \cdot (2\sqrt{8} - \sqrt{32} + 5\sqrt{18})$

52. $(\sqrt{6} + 2)(\sqrt{6} - 2)$

53. $(\sqrt{11} + \sqrt{3})(\sqrt{11} - \sqrt{3})$

54. $(3\sqrt{2} + 1)(3\sqrt{2} - 1)$

55. $(\sqrt{3} + 4)(\sqrt{12} - 2)$

56. $(\sqrt{10} - \sqrt{2})(\sqrt{10} + \sqrt{5})$

57. $(4\sqrt{3} - 3\sqrt{2})(2\sqrt{3} + \sqrt{2})$

58. $(\sqrt{5} + 3)^2$

59. $(3\sqrt{2} - 4)^2$

60. $(\sqrt{2} + \sqrt{10})^2$

IV. Împărțirea radicalilor (61–75)

Efectuați împărțirile:

61. $\sqrt{98} : \sqrt{2}$

62. $\sqrt{108} : \sqrt{3}$

63. $\sqrt{245} : \sqrt{5}$

64. $18\sqrt{10} : 6\sqrt{2}$

65. $21\sqrt{21} : 7\sqrt{3}$

66. $-32\sqrt{24} : 8\sqrt{6}$

67. $\sqrt{150} : \sqrt{6}$

68. $\sqrt{252} : \sqrt{7}$

69. $(8\sqrt{18} - 12\sqrt{32}) : 4\sqrt{2}$

70. $(15\sqrt{75} + 10\sqrt{27} - 5\sqrt{48}) : 5\sqrt{3}$

71. $\dfrac{\sqrt{63} + \sqrt{28}}{\sqrt{7}}$

72. $\dfrac{6\sqrt{40} - 9\sqrt{90}}{3\sqrt{10}}$

73. $\dfrac{\sqrt{162} - \sqrt{50}}{\sqrt{2}}$

74. $\dfrac{12\sqrt{20} + 8\sqrt{80}}{4\sqrt{5}}$

75. $\dfrac{20\sqrt{54} - 15\sqrt{24}}{5\sqrt{6}}$

V. Ridicarea la putere a radicalilor (76–88)

Calculați:

76. $(\sqrt{13})^2$

77. $(4\sqrt{3})^2$

78. $(5\sqrt{2})^2$

79. $(-\sqrt{15})^2$

80. $(-3\sqrt{7})^2$

81. $(\sqrt{5})^3$

82. $(\sqrt{6})^3$

83. $(2\sqrt{3})^3$

84. $(\sqrt{3})^4$

85. $(\sqrt{3})^6$

86. $(-\sqrt{2})^5$

87. $\left(\dfrac{\sqrt{10}}{5}\right)^2$

88. $\left(\dfrac{3\sqrt{2}}{4}\right)^2$

VI. Exerciții combinate – Setul 2 (89–100)

Calculați:

89. $(\sqrt{3} + \sqrt{12})^2 - \sqrt{81}$

90. $(2\sqrt{7} - 3)^2 + 12\sqrt{7}$

91. $\dfrac{(\sqrt{8})^2 + \sqrt{27} \cdot \sqrt{3}}{\sqrt{169}}$

92. $(\sqrt{20} + \sqrt{45}) : \sqrt{5} + (3\sqrt{2})^2$

93. $3 \cdot (\sqrt{6}-2)(\sqrt{6}+2) - (\sqrt{2})^4$

94. $\sqrt{75} - \dfrac{15}{\sqrt{3}} + (\sqrt{6}+1)^2 - 2\sqrt{6}$

95. $(4\sqrt{10} - 6\sqrt{5}) : 2\sqrt{5} + (\sqrt{2}-3)^2$

96. $\dfrac{\sqrt{288}-\sqrt{98}}{\sqrt{2}} - (2\sqrt{3})^2$

97. $(\sqrt{11}+\sqrt{6})(\sqrt{11}-\sqrt{6}) + (\sqrt{3})^3 : \sqrt{3}$

98. $2 \cdot (\sqrt{3})^4 - 3\sqrt{32} + \sqrt{72} : \sqrt{2}$

99. $\left(\sqrt{44}-\sqrt{99}\right) : \sqrt{11} + (5-\sqrt{3})^2$

100. $\dfrac{(3\sqrt{2})^2 + \sqrt{98} : \sqrt{2} - (\sqrt{15})^2}{\sqrt{25}}$

SETUL 3: Exclusiv exerciții combinate (100 de exerciții)

Nivelul I: Operații combinate de bază (1–30)

Calculați:

1. $(\sqrt{2}+\sqrt{8})^2-\sqrt{18}\cdot\sqrt{2}$

2. $(2\sqrt{3}-\sqrt{12})^2+(\sqrt{5})^2$

3. $\sqrt{50}:\sqrt{2}+(3\sqrt{2})^2-\sqrt{49}$

4. $(\sqrt{27}+\sqrt{12}):\sqrt{3}+(\sqrt{2})^4$

5. $2\cdot(\sqrt{6})^2-\sqrt{32}\cdot\sqrt{2}+\sqrt{9}$

6. $(\sqrt{5}+1)(\sqrt{5}-1)+(2\sqrt{3})^2$

7. $(3\sqrt{2}-1)(3\sqrt{2}+1)-(\sqrt{17})^2$

8. $\dfrac{\sqrt{72}+\sqrt{18}}{\sqrt{2}}-(\sqrt{3})^2$

9. $\dfrac{\sqrt{125}-\sqrt{20}}{\sqrt{5}}+(2\sqrt{2})^2$

10. $\sqrt{3}\cdot(\sqrt{12}+\sqrt{27})-(\sqrt{4})^3$

11. $2\sqrt{5}\cdot(\sqrt{20}-\sqrt{5})+(\sqrt{10})^2$

12. $(\sqrt{7}+2)^2-4\sqrt{7}-(\sqrt{3})^2$

13. $(3-\sqrt{5})^2+6\sqrt{5}-(\sqrt{2})^4$

14. $\dfrac{(2\sqrt{5})^2+\sqrt{48}:\sqrt{3}}{\sqrt{36}}$

15. $\dfrac{(\sqrt{10})^2-\sqrt{54}:\sqrt{6}}{\sqrt{49}}$

16. $(\sqrt{2})^6-3\cdot(\sqrt{3})^2+\sqrt{16}$

17. $(2\sqrt{2})^3-\sqrt{32}:\sqrt{2}+\sqrt{25}$

18. $\sqrt{45}\cdot\sqrt{5}-(\sqrt{12})^2+(\sqrt{2})^2$

19. $\left(\dfrac{\sqrt{6}}{2}\right)^2\cdot 4-\sqrt{81}:\sqrt{9}$

20. $\left(\dfrac{2\sqrt{3}}{3}\right)^2\cdot 9+(\sqrt{5}-2)(\sqrt{5}+2)$

21. $\sqrt{8}\cdot\sqrt{18}-\sqrt{75}:\sqrt{3}+(\sqrt{2})^2$

22. $(4\sqrt{2}-\sqrt{50})^2+\sqrt{100}$

23. $(\sqrt{11}+\sqrt{3})(\sqrt{11}-\sqrt{3})-\sqrt{64}$

24. $\dfrac{\sqrt{98}-\sqrt{32}}{\sqrt{2}}+(3\sqrt{3})^2$

25. $\sqrt{6}\cdot(\sqrt{24}-\sqrt{6})+(\sqrt{2})^3:\sqrt{2}$

26. $(2\sqrt{7}+3)(2\sqrt{7}-3)-(\sqrt{19})^2$

27. $\dfrac{(\sqrt{15})^2+\sqrt{63}:\sqrt{7}}{\sqrt{9}}$

28. $5\cdot(\sqrt{2})^2-(\sqrt{48}-\sqrt{27}):\sqrt{3}$

29. $(\sqrt{3}+\sqrt{12})\cdot\sqrt{3}-(\sqrt{3})^2$

30. $\dfrac{\sqrt{200}+\sqrt{50}}{\sqrt{2}}-(2\sqrt{3})^2$

Nivelul II: Expresii cu paranteze, puteri și fracții (31–70)

Calculați:

31. $(\sqrt{5}+\sqrt{20})^2-(\sqrt{45}:\sqrt{5})^2$

32. $(2\sqrt{6}-3)^2+12\sqrt{6}-(2\sqrt{5})^2$

33. $\dfrac{(3\sqrt{2})^2+\sqrt{108}:\sqrt{3}-(\sqrt{13})^2}{\sqrt{121}}$

34. $3\cdot(\sqrt{7}-2)(\sqrt{7}+2)-(\sqrt{3})^4+\sqrt{144}$

35. $(4\sqrt{3}-6\sqrt{2}):2+(3\sqrt{2}-2\sqrt{3})$

36. $\left(\sqrt{80}-\sqrt{20}\right):\sqrt{5}+(3-\sqrt{2})^2+6\sqrt{2}$

37. $\dfrac{\sqrt{242}-\sqrt{72}}{\sqrt{2}}-(2\sqrt{2})^2+\sqrt{169}$

38. $(\sqrt{13}+\sqrt{5})(\sqrt{13}-\sqrt{5})+(\sqrt{2})^5:\sqrt{2}$

39. $4\cdot(\sqrt{3})^2-2\sqrt{50}:\sqrt{2}+(\sqrt{6}-1)(\sqrt{6}+1)$

40. $\dfrac{(4\sqrt{2})^2-\sqrt{147}:\sqrt{3}}{\sqrt{25}}+(\sqrt{3})^2$

41. $(\sqrt{2}+\sqrt{3})^2+(\sqrt{2}-\sqrt{3})^2$

42. $(2\sqrt{5}+1)^2-(2\sqrt{5}-1)^2$

43. $(\sqrt{7}+\sqrt{2})^2-(\sqrt{7}-\sqrt{2})^2-4\sqrt{14}$

44. $\dfrac{6}{\sqrt{3}}+\sqrt{48}-(2\sqrt{3})^2$

45. $\dfrac{10}{\sqrt{5}}-\sqrt{45}+(\sqrt{5}+1)^2-2\sqrt{5}$

46. $\dfrac{12}{\sqrt{2}}-\sqrt{72}+(3\sqrt{2})^2-\sqrt{196}$

47. $\left(\dfrac{8}{\sqrt{2}}+\sqrt{32}\right):\sqrt{2}-(\sqrt{3})^2$

48. $(3\sqrt{5}-2\sqrt{3})(3\sqrt{5}+2\sqrt{3})-(5\sqrt{2})^2$

49. $\sqrt{12}\cdot\left(\dfrac{6}{\sqrt{3}}-\sqrt{3}\right)+(\sqrt{2})^4$

50. $\dfrac{(2\sqrt{7})^2-\sqrt{128}:\sqrt{2}+(\sqrt{5})^2}{\sqrt{25}}$

51. $(\sqrt{18}+\sqrt{50}-\sqrt{8}):\sqrt{2}-(2\sqrt{2})^2$

52. $\left(\sqrt{75}-\sqrt{27}+\sqrt{12}\right)\cdot\sqrt{3}-(\sqrt{4})^2$

53. $(2\sqrt{3}+3\sqrt{2})^2-12\sqrt{6}-(\sqrt{30})^2$

54. $\dfrac{(\sqrt{5})^4-(3\sqrt{2})^2}{\sqrt{49}}+\sqrt{225}$

55. $\left(\dfrac{\sqrt{12}}{2}\right)^2+\left(\dfrac{\sqrt{18}}{3}\right)^2-(\sqrt{5})^2$

56. $\sqrt{6}\cdot(\sqrt{24}+\sqrt{54})-(2\sqrt{6})^2$

57. $(4\sqrt{5}-\sqrt{80})^2+\dfrac{\sqrt{162}}{\sqrt{2}}$

58. $\dfrac{15}{\sqrt{3}}+\dfrac{10}{\sqrt{2}}-\sqrt{75}-\sqrt{50}+(\sqrt{11})^2$

59. $(\sqrt{14}-2)(\sqrt{14}+2)-(3\sqrt{2})^2+\sqrt{256}$

60. $\dfrac{(3\sqrt{3})^2+\sqrt{245}:\sqrt{5}-(\sqrt{10})^2}{\sqrt{16}}$

61. $\left(2\sqrt{27}-3\sqrt{12}\right)\cdot\sqrt{3}+(\sqrt{7})^2$

62. $(\sqrt{6}+\sqrt{2})^2-\sqrt{48}-(2\sqrt{2})^2$

63. $(5-2\sqrt{3})^2+20\sqrt{3}-(3\sqrt{4})^2$

64. $\dfrac{\sqrt{288}-\sqrt{128}+\sqrt{32}}{\sqrt{2}}-(\sqrt{3})^2$

65. $2\cdot(\sqrt{5})^3:\sqrt{5}-(3\sqrt{2}-1)(3\sqrt{2}+1)$

66. $\left(\dfrac{14}{\sqrt{7}}+\sqrt{63}\right):\sqrt{7}+(2\sqrt{3})^2$

67. $(\sqrt{17}+3)(\sqrt{17}-3)+\dfrac{\sqrt{192}}{\sqrt{3}}-(\sqrt{4})^2$

68. $(3\sqrt{6}-\sqrt{24})^2:6+(\sqrt{5})^2$

69. $\dfrac{(5\sqrt{2})^2-\sqrt{175}:\sqrt{7}-(\sqrt{15})^2}{\sqrt{36}}$

70. $\sqrt{10}\cdot(\sqrt{40}-\sqrt{90})+(4\sqrt{2})^2$

Nivelul III: Expresii complexe (recapitulare și performanță) (71–100)

Calculați:

71. $\left[(\sqrt{3}+\sqrt{12})^2-\sqrt{108}:\sqrt{3}\right]:\sqrt{49}+(2\sqrt{2})^2$

72. $\dfrac{(2\sqrt{6})^2-(\sqrt{5}+1)(\sqrt{5}-1)}{\sqrt{25}}+\left(\dfrac{\sqrt{18}}{\sqrt{2}}\right)^2$

73. $(3\sqrt{2}-2\sqrt{3})^2+12\sqrt{6}-\dfrac{\sqrt{250}}{\sqrt{10}}-(\sqrt{5})^2$

74. $\left(\dfrac{18}{\sqrt{6}}+\sqrt{54}-\sqrt{24}\right):\sqrt{6}+(3\sqrt{2})^2$

75. $\dfrac{(\sqrt{3})^6-(2\sqrt{5})^2+\sqrt{144}}{\sqrt{19^2}}$

76. $\left[(\sqrt{7}+\sqrt{2})(\sqrt{7}-\sqrt{2})\right]^2-(3\sqrt{2})^2+\sqrt{81}$

77. $(2\sqrt{5}+3\sqrt{2})(2\sqrt{5}-3\sqrt{2})+(\sqrt{2}+1)^2-2\sqrt{2}$

78. $\dfrac{\sqrt{300}-\sqrt{108}+\sqrt{48}}{\sqrt{3}}\cdot\sqrt{4}-(3\sqrt{2})^2$

79. $\left(\sqrt{45}+\dfrac{20}{\sqrt{5}}-\sqrt{80}\right)^2+(\sqrt{7})^2$

80. $\dfrac{(4\sqrt{3})^2-\sqrt{216}:\sqrt{6}+(\sqrt{7})^2}{\sqrt{25}}-(\sqrt{3})^2$

81. $\left[(\sqrt{2}+\sqrt{8})^2+(\sqrt{3}-\sqrt{12})^2\right]:\sqrt{49}+\sqrt{121}$

82. $(4\sqrt{2}-3)^2+24\sqrt{2}-\left(\sqrt{125}:\sqrt{5}\right)^2-(\sqrt{4})^2$

83. $\frac{24}{\sqrt{8}} + \frac{18}{\sqrt{2}} - \sqrt{288} + (2\sqrt{3})^2$

84. $\left[(2\sqrt{3})^2 - \sqrt{75} : \sqrt{3}\right] \cdot (\sqrt{5}-2)(\sqrt{5}+2) + \sqrt{36}$

85. $\frac{(\sqrt{2})^8 - (3\sqrt{2})^2 + \sqrt{49}}{\sqrt{25}}$

86. $\left(\sqrt{150} - \frac{24}{\sqrt{6}} + \sqrt{24}\right) : \sqrt{6} - (\sqrt{2})^3 : \sqrt{2}$

87. $(5\sqrt{2} - 2\sqrt{5})(5\sqrt{2} + 2\sqrt{5}) - (3\sqrt{3})^2 + \sqrt{16}$

88. $\left[(\sqrt{6}+2)^2 - 4\sqrt{6}\right] : \sqrt{25} + \left(\frac{2\sqrt{6}}{3}\right)^2 \cdot 3$

89. $\frac{\sqrt{363} - \sqrt{147} + \sqrt{27}}{\sqrt{3}} - \frac{(\sqrt{14})^2}{\sqrt{49}}$

90. $\left[(3\sqrt{5})^2 - \sqrt{320} : \sqrt{5}\right] : \sqrt{1369} + (2\sqrt{5})^2$

91. $(2\sqrt{7} - \sqrt{28} + \sqrt{63})^2 : 7 - (\sqrt{3})^2$

92. $\frac{(3\sqrt{6})^2 - (\sqrt{19}+2)(\sqrt{19}-2)}{\sqrt{169}} + (2\sqrt{2})^2$

93. $\left(\frac{30}{\sqrt{5}} - \sqrt{125} + \sqrt{20}\right) \cdot \sqrt{5} - (3\sqrt{2})^2$

94. $\left[(\sqrt{11}+\sqrt{5})(\sqrt{11}-\sqrt{5})\right]^2 - (5\sqrt{2})^2 + \sqrt{196}$

95. $\frac{\sqrt{500} - \sqrt{180} + \sqrt{80}}{\sqrt{5}} + (2-\sqrt{3})^2 + 4\sqrt{3}$

96. $(3\sqrt{3} + 2\sqrt{2})^2 - 12\sqrt{6} - \frac{\sqrt{405}}{\sqrt{5}} - (2\sqrt{6})^2$

97. $\left[\frac{(4\sqrt{2})^2 - \sqrt{98} : \sqrt{2}}{\sqrt{25}}\right]^2 + (\sqrt{11}-3)(\sqrt{11}+3)$

98. $\left(\sqrt{96} + \frac{36}{\sqrt{6}} - \sqrt{216}\right) : \sqrt{6} + (3\sqrt{3})^2 - \sqrt{144}$

99. $\frac{(5\sqrt{3})^2 - (2\sqrt{11})^2 + \sqrt{81}}{\sqrt{16}} + (\sqrt{2})^4$

100. $\left[(\sqrt{8}+\sqrt{18})^2 - \frac{\sqrt{450}}{\sqrt{2}}\right] : \sqrt{1225} + (2\sqrt{3})^2 - (\sqrt{11})^2$