

二次根式计算专练（15 天）

姓名：_____ 考号：_____

一、解答题

1. 计算： $\sqrt{16} + |\sqrt{3} - 1| - \sqrt[3]{27} - 2\sqrt{3}$.

2. 计算

(1) $(-2)^2 - \sqrt[3]{8} + \sqrt{9}$

(2) $2(\sqrt{2} - \sqrt{3}) + |\sqrt{3} - \sqrt{2}|$

3. 计算： $\sqrt{12} - \sqrt{3} + 2^0$.

4. 计算

(1) $\sqrt{5} \times \sqrt{10}$

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

5. 计算： $-2^3 + \left(-\frac{1}{3}\right)^{-2} + (2026 - \pi)^0$.

6. 完成下列小题.

(1) 计算： $(-1)^2 + \sqrt{9} + \sqrt[3]{-8}$;

(2) 解方程： $2(x-1)^2 = 8$.

7. 计算：

(1) $\sqrt{2} \times \sqrt{3} + \sqrt{3} \div \sqrt{5}$;

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

8. 计算：

(1) $\sqrt{48} + \sqrt{\frac{1}{3}} - \sqrt{3}$;

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

9. 计算 $\sqrt[3]{27} - 3^2 + |\sqrt{2} - 3| + \sqrt{36}$

10. 计算： $|-5| - (\pi - 1)^0 + \left(\frac{1}{2}\right)^{-1}$.

11. 计算： $-1^{2026} + \sqrt{4} - \sqrt[3]{-64} - |\sqrt{3} - 3|$

12. 计算： $\sqrt{4} - (\pi - \sqrt{3})^0 - |1 - \sqrt{2}|$;

13. 计算：

(1) $-\left|-\frac{1}{4}\right| + \sqrt{36} + 2^{-2}$;

$$(2)(x-1)(x+3)-1$$

19. 计算:

$$(1)(\pi-2)^0-3^{-2}+(-1)^{2026}-|-2|;$$

14. 计算下列各题

$$(1)\sqrt{27}+3\sqrt{\frac{1}{3}}-\sqrt{75}$$

$$(2)(-2xy)^2+(x^2y)^3\div(-x^4y).$$

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

20. 计算:

$$(1)\sqrt{\frac{3}{2}}\times\sqrt{18};$$

15. 计算:

$$(1)(\pi-\sqrt{2})^0+(\sqrt{3})^2+2^{-1}.$$

$$(2)\sqrt{3}(1-\sqrt{15})+3\sqrt{5}.$$

$$(2)(x+2)^2-(x+2)(x-2).$$

21. 计算:

$$(1)\sqrt{3}\times\sqrt{12}-\sqrt{\frac{1}{2}}+(\sqrt{2})^2;$$

16. 计算与解方程

$$(1)\text{计算: }-1^{2026}+\sqrt{(-2)^2}+\sqrt[3]{-27}+|\sqrt{3}-2|;$$

$$(2)(1-\sqrt{2})^0+(\sqrt{6}-2)(\sqrt{6}+2)+|2-\sqrt{5}|.$$

$$(2)\text{求方程中 }x\text{ 的值: }4x^2-20=0.$$

$$22. \text{ 计算: }(-1)^{2026}+|\sqrt{3}-2|+\sqrt{12}+\left(\frac{1}{2}\right)^{-2}.$$

$$17. \text{ 计算: } \sqrt{27}-\sqrt{2}\times\sqrt{6}+\frac{\sqrt{15}}{\sqrt{5}}.$$

23. 计算:

$$(1)\sqrt{(-4)^2}-\frac{1}{4}-\sqrt[3]{-0.125}-|-6|;$$

$$18. \text{ 计算: } |\sqrt{3}-2|+|\sqrt{3}-1|-\sqrt{4}-\sqrt[3]{-27}.$$

$$(2)(-1)^3 + |1 - \sqrt{2}| + \sqrt[3]{8} - \sqrt{(-2)^2}.$$

27. 计算:

$$(1)\sqrt{12} + \sqrt{32} - 2\sqrt{2};$$

24. 计算:

$$(1)\sqrt{12} \times \sqrt{3} - \sqrt{27}$$

$$(2)|\sqrt{3} - 2| + \sqrt{12} - \sqrt{\frac{1}{3}}.$$

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

28. 计算:

$$(1)(-1)^{2026} + \sqrt{16} - |-3| + \sqrt[3]{-8};$$

$$(3)\frac{\sqrt{20} + \sqrt{5}}{\sqrt{5}} - 3\sqrt{\frac{1}{3}}$$

$$(2)3^{-1} - \sqrt{24} + \sqrt{\frac{3}{2}} + (3 - \sqrt{3})^0.$$

$$(4)|\sqrt{3} - 2| + (\pi - 3)^0 + 2^{-2}$$

$$29. \text{ 计算: } \left(\frac{1}{2}\right)^{-1} - |\sqrt{2} - 2| + \sqrt{3} \times \sqrt{\frac{2}{3}}.$$

$$(5)\left(\sqrt{6} + \sqrt{\frac{2}{3}}\right) \times \sqrt{6}$$

30. 计算:

$$(1)\sqrt{18} \div \sqrt{6} - 3\sqrt{\frac{1}{3}};$$

$$(6)(\sqrt{48} - \sqrt{27}) \div \sqrt{3} + \sqrt{6} \times \sqrt{\frac{1}{3}}$$

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

$$25. \text{ 计算: } \sqrt[3]{-8} + \sqrt{9} - \sqrt{4}.$$

31. 计算:

$$(1)(\pi - 3)^0 + |-1^{2026}| + \left(-\frac{1}{2}\right)^{-2};$$

$$26. \text{ 计算: } |-5| - (-3)^2 - (\sqrt{7})^2 + \left(-\frac{1}{2}\right)^{-2}.$$

$$(2)\sqrt{\frac{1}{2}} \times \sqrt{12} - \sqrt{48} \div \sqrt{2} - 3\sqrt{\frac{2}{3}}.$$

$$(1)\sqrt{25}-(-2)^2+\sqrt[3]{-27}$$

32. 计算:

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

$$(2)\sqrt{9}+|1-\sqrt{2}|+\sqrt[3]{-8}-2\sqrt{2}$$

$$(2)\sqrt[3]{27}-\frac{\sqrt{2}\times\sqrt{6}}{\sqrt{3}};$$

$$37. \text{ 计算: } -1^{2026}+\sqrt{36}-\sqrt[3]{27}+|\sqrt{3}-2|$$

$$(3)\sqrt{16}+(2-\sqrt{2})^0-\left(-\frac{1}{2}\right)^{-1}+|-1|;$$

38. 计算:

$$(1)\sqrt{81}+\sqrt[3]{-27}+\sqrt{4}-|\sqrt{3}-2|$$

$$(4)\sqrt{12}\times\sqrt{4}+\sqrt{27}.$$

$$(2)\sqrt{48}+\sqrt{3}-\sqrt{\frac{1}{2}}\times\sqrt{12}+\sqrt{24}$$

33. 计算

$$(1)3\sqrt{8}-4\sqrt{\frac{1}{2}}+3\sqrt{32}$$

$$39. \text{ 求式子中的 } x: 2(x-1)^2-8=0.$$

$$(2)2\sqrt{12}\times\frac{\sqrt{3}}{4}\div5\sqrt{2}$$

$$40. \text{ 计算: } |4-\sqrt{17}|-\sqrt[3]{-8}.$$

$$34. \text{ 计算: } (3.14-\pi)^0-\sqrt{2}\times\sqrt{6}+|2-\sqrt{3}|.$$

41. 计算:

$$(1)(2\sqrt{5}-\sqrt{7})(2\sqrt{5}+\sqrt{7})-(\sqrt{5}-3)^2;$$

$$35. \text{ 计算: } |1-\sqrt{3}|+\sqrt[3]{-8}-\sqrt{3}+\sqrt{4}.$$

$$(2)\sqrt{12}\times\sqrt{\frac{3}{2}}-\sqrt{10}\div\sqrt{5}+\frac{\sqrt{18}-\sqrt{8}}{\sqrt{2}}.$$

36. 计算:

42. 二次根式计算

(1) $\sqrt{8} - \sqrt{6} \times \frac{1}{\sqrt{3}}$

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

43. 计算: $-1^{2026} + \sqrt{(-2)^2} + \sqrt[3]{-27} - |-\sqrt{6}|$.

44. 计算: $(\sqrt{6} + \sqrt{2})^2 - \sqrt{3}(\sqrt{27} + 4)$.

45. 计算:

(1) $\sqrt{18} - \sqrt{8} + \sqrt{\frac{1}{2}} \times \sqrt{50}$;

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

46. 计算: $(-1)^{2026} + \sqrt{9} + \sqrt[3]{(-8)} - |\sqrt{2} - 3|$.

47. 计算:

(1) $\frac{2}{\sqrt{2}} \times \left(2\sqrt{12} + 4\sqrt{\frac{1}{8}} - 3\sqrt{48} \right)$;

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

48. 计算: $\sqrt{(-2)^2} + |1 - \sqrt{3}| - \sqrt{2} \left(\frac{1}{\sqrt{2}} - 1 \right)$.

49. 计算:

(1) $2\sqrt{27} - \sqrt{24} + \sqrt{2} \times \sqrt{3}$;

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

50. 计算:

(1) $\sqrt{9} + \sqrt[3]{-8} - \sqrt{(-2)^2}$

(2) $|\sqrt{2} - 1| + \sqrt{2}$

51. 计算: $\sqrt{(-1)^2} + |-\sqrt{3}| - \sqrt{2} \times \sqrt{6} - \left(\frac{1}{2} \right)^0$.

52. 计算: $(\sqrt{5} - 1)^0 + (\sqrt{2})^2 - \sqrt{3} \times \sqrt{6} + |-\sqrt{8}| - \left(\frac{1}{2} \right)^{-1}$.

53. 计算:

$$(1) \left(2\sqrt{8} - \sqrt{\frac{1}{2}} \right) \times 4 - \frac{4}{\sqrt{2}};$$

$$58. \text{ 计算: } (-1)^{2026} - \sqrt[3]{8} + |-5| + \sqrt{4}.$$

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

$$59. \text{ 计算: } \sqrt{81} + \sqrt[3]{-27} + |1 - \sqrt{3}| + (-2)^2.$$

54. 化简:

$$(1) \sqrt{0.3^2};$$

60. 按要求完成下列各题:

$$(2) \sqrt{\left(-\frac{1}{7}\right)^2};$$

$$(1) \text{ 计算: } \sqrt[3]{27} - \sqrt{(-2)^2} + \sqrt{9};$$

$$(3) -\sqrt{(-\pi)^2};$$

$$(2) \text{ 求下列式子中 } x \text{ 的值: } (x+2)^2 = 9.$$

$$(4) \sqrt{10^{-2}}.$$

55. 计算:

$$(1) 2\sqrt{7} - 6\sqrt{7};$$

61. 计算

$$(2) \sqrt{12} + \sqrt{27} - 3\sqrt{\frac{1}{3}};$$

$$(1) \sqrt{27} - 3\sqrt{\frac{1}{3}} + \sqrt{48};$$

$$(3) \sqrt{18} + (\sqrt{98} - \sqrt{27});$$

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

$$(4) (\sqrt{24} + \sqrt{0.5}) - \left(\sqrt{\frac{1}{8}} - \sqrt{6} \right).$$

$$62. \text{ 计算: } (3 + \sqrt{6})(3 - \sqrt{6}) - \sqrt{\frac{25}{3}} + \sqrt{36} \div \sqrt{3}.$$

$$56. \text{ 计算: } \sqrt[3]{-8} + |4 - \sqrt{17}| - \sqrt{17}(\sqrt{17} + 3).$$

$$63. \text{ 计算: } (\sqrt{7} + 1)^2 - \sqrt{2}(\sqrt{14} + \sqrt{2}).$$

$$57. \text{ 计算: } |\sqrt{2} - 1| - |\sqrt{3} - 2| + |\sqrt{3} - \sqrt{2}|.$$

64. 计算:

$$(1)(-2026)^0 + \left(\frac{1}{3}\right)^{-2} + |1 - \sqrt{2}| - \sqrt{2}$$

$$(2)(2\sqrt{5} - 7)(2\sqrt{5} + 7) - (\sqrt{5} - 3)^2$$

65. 计算:

$$(1)\frac{\sqrt{5} + \sqrt{10}}{\sqrt{5}} - \sqrt{\frac{1}{3}} \times \sqrt{12};$$

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

66. 计算:

$$(1)\sqrt{48} - 2\sqrt{\frac{1}{3}} + \sqrt{3};$$

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

$$67. \text{ 计算: } \sqrt[3]{27} + |1 - \sqrt{2}| + (-3)^2 - \sqrt{9}.$$

$$68. \text{ 计算: } \sqrt{25} + |1 - 3| - \sqrt[3]{-8}.$$

$$69. \text{ 计算: } (\sqrt{2})^2 + |-\sqrt{3}| - (\sqrt{5})^0 + \left(\frac{1}{4}\right)^{-1} - \sqrt{6} \times \sqrt{\frac{1}{2}}.$$

70. 计算:

$$(1)\sqrt{12} - \sqrt{3} + \sqrt{8} \div \sqrt{\frac{1}{2}};$$

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

71. 计算

$$(1)\sqrt{9} \times 2\sqrt{\frac{1}{3}} - 3\sqrt{6} \div \sqrt{2}.$$

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

$$72. \text{ 计算: } (2 - \sqrt{3})^2 - (2 + \sqrt{3})^2$$

73. 计算:

$$(1)\sqrt{2^2} + \sqrt[3]{-27} + |1 - \sqrt{25}|$$

$$(2)\sqrt{6} \times \sqrt{3} + \sqrt{18} + \sqrt{9} - \sqrt{\frac{1}{2}}$$

$$(3)\frac{2\sqrt{12} + \sqrt{3}}{\sqrt{3}} + (1 - \sqrt{3})^0$$

(4) $(2-\sqrt{3})^{2016} (2+\sqrt{3})^{2015}$

(5) 解方程： $4x^2 - 81 = 0$

(6) 解方程： $(x-1)^3 + 4 = \frac{5}{8}$

74. 计算： $\sqrt{49} - \sqrt[3]{-27} + (-1)^{2026} + |1 - \sqrt{2}| + \sqrt{\frac{1}{16}}$.

75. 计算： $\sqrt{12} - \sqrt{27} + \sqrt{18} \div \frac{\sqrt{6}}{2}$.