

A.N.3: Operations with Radicals 1: Perform addition, subtraction, multiplication, and division

- 1 The expression $\sqrt{27} + \sqrt{12}$ is equivalent to
1) $5\sqrt{3}$ 2) $13\sqrt{3}$ 3) $5\sqrt{6}$ 4) $\sqrt{39}$
- 2 The sum of $\sqrt{75}$ and $\sqrt{3}$ is
1) 15 2) 18 3) $6\sqrt{3}$ 4) $\sqrt{78}$
- 3 The sum of $\sqrt{18}$ and $\sqrt{72}$ is
1) $\sqrt{90}$ 2) $9\sqrt{2}$ 3) $3\sqrt{10}$ 4) $6\sqrt{3}$
- 4 The sum of $\sqrt{27}$ and $\sqrt{108}$ is
1) $\sqrt{135}$ 2) $9\sqrt{3}$ 3) $3\sqrt{3}$ 4) $4\sqrt{27}$
- 5 What is the sum of $\sqrt{50}$ and $\sqrt{32}$?
1) $\sqrt{82}$ 2) $20\sqrt{20}$ 3) $9\sqrt{2}$ 4) $\sqrt{2}$
- 6 The expression $\sqrt{28} + \sqrt{63}$ is equivalent to
1) $\sqrt{91}$ 2) $5\sqrt{7}$ 3) $6\sqrt{7}$ 4) $13\sqrt{7}$
- 7 What is the sum of $\sqrt{50}$ and $\sqrt{8}$?
1) $\sqrt{58}$ 2) $7\sqrt{2}$ 3) $9\sqrt{2}$ 4) $29\sqrt{2}$
- 8 What is $\sqrt{150} + \sqrt{24}$ expressed in simplest radical form?
1) $7\sqrt{6}$ 2) $7\sqrt{12}$ 3) $\sqrt{87}$ 4) $\sqrt{174}$
- 9 What is $3\sqrt{2} + \sqrt{8}$ expressed in simplest radical form?
1) $3\sqrt{10}$ 2) $3\sqrt{16}$ 3) $5\sqrt{2}$ 4) $7\sqrt{2}$
- 10 The expression $2\sqrt{50} - \sqrt{2}$ is equivalent to
1) $2\sqrt{48}$ 2) 10 3) $9\sqrt{2}$ 4) $49\sqrt{2}$
- 11 The expression $\sqrt{72} - 3\sqrt{2}$ written in simplest radical form is
1) $5\sqrt{2}$ 2) $3\sqrt{6}$ 3) $3\sqrt{2}$ 4) $\sqrt{6}$
- 12 The expression $6\sqrt{50} + 6\sqrt{2}$ written in simplest radical form is
1) $6\sqrt{52}$ 2) $12\sqrt{52}$ 3) $17\sqrt{2}$ 4) $36\sqrt{2}$
- 13 What is the sum of $5\sqrt{7}$ and $3\sqrt{28}$?
1) $9\sqrt{7}$ 2) $11\sqrt{7}$ 3) $60\sqrt{7}$ 4) $8\sqrt{35}$
- 14 Simplify: $\sqrt{48} + \sqrt{27}$
- 15 Simplify: $\sqrt{45} + \sqrt{20}$
- 16 Simplify: $\sqrt{48} + \sqrt{75} - \sqrt{27}$
- 17 Express $\frac{3\sqrt{75} + \sqrt{27}}{3}$ in simplest radical form.
- 18 Express $\sqrt{25} - 2\sqrt{3} + \sqrt{27} + 2\sqrt{9}$ in simplest radical form.
- 19 Express in simplest form: $\sqrt{48} - 5\sqrt{27} + 2\sqrt{75}$
- 20 Express $\frac{1}{2}\sqrt{48} - (2\sqrt{12} - \sqrt{27})$ in simplest radical form.
- 21 Express $y\sqrt{3} - (\sqrt{32} + y\sqrt{27})$ in simplest radical form.

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Answer Section

1 ANS: 1

$$\sqrt{27} + \sqrt{12} = \sqrt{9}\sqrt{3} + \sqrt{4}\sqrt{3} = 3\sqrt{3} + 2\sqrt{3} = 5\sqrt{3}$$

REF: 069920a

2 ANS: 3

$$\sqrt{75} + \sqrt{3} = \sqrt{25}\sqrt{3} + \sqrt{3} = 5\sqrt{3} + \sqrt{3} = 6\sqrt{3}$$

REF: 010311a

3 ANS: 2

$$\sqrt{18} + \sqrt{72} = \sqrt{9}\sqrt{2} + \sqrt{36}\sqrt{2} = 3\sqrt{2} + 6\sqrt{2} = 9\sqrt{2}$$

REF: 060316a

4 ANS: 2

$$\sqrt{27} + \sqrt{108} = \sqrt{9}\sqrt{3} + \sqrt{36}\sqrt{3} = 3\sqrt{3} + 6\sqrt{3} = 9\sqrt{3}$$

REF: 010912a

5 ANS: 3

$$\sqrt{50} + \sqrt{32} = \sqrt{25}\sqrt{2} + \sqrt{16}\sqrt{2} = 5\sqrt{2} + 4\sqrt{2} = 9\sqrt{2}$$

REF: 080614a

6 ANS: 2

$$\sqrt{28} + \sqrt{63} = \sqrt{4}\sqrt{7} + \sqrt{9}\sqrt{7} = 2\sqrt{7} + 3\sqrt{7} = 5\sqrt{7}$$

REF: 060724a

7 ANS: 2

$$\sqrt{50} + \sqrt{8} = \sqrt{25}\sqrt{2} + \sqrt{4}\sqrt{2} = 5\sqrt{2} + \sqrt{2} = 7\sqrt{2}$$

REF: 080712a

8 ANS: 1

$$\sqrt{150} + \sqrt{24} = \sqrt{25}\sqrt{6} + \sqrt{4}\sqrt{6} = 5\sqrt{6} + 2\sqrt{6} = 7\sqrt{6}$$

REF: 011517ia

9 ANS: 3

$$3\sqrt{2} + \sqrt{8} = 3\sqrt{2} + \sqrt{4}\sqrt{2} = 3\sqrt{2} + 2\sqrt{2} = 5\sqrt{2}$$

REF: 011121ia

10 ANS: 3

$$2\sqrt{50} - \sqrt{2} = 2\sqrt{25}\sqrt{2} - \sqrt{2} = 10\sqrt{2} - \sqrt{2} = 9\sqrt{2}$$

REF: 080016a

11 ANS: 3

$$\sqrt{72} - 3\sqrt{2} = \sqrt{36} \sqrt{2} - 3\sqrt{2} = 6\sqrt{2} - 3\sqrt{2} = 3\sqrt{2}$$

REF: 061008ia

12 ANS: 4

$$6\sqrt{50} + 6\sqrt{2} = 6\sqrt{25} \sqrt{2} + 6\sqrt{2} = 30\sqrt{2} + 6\sqrt{2} = 36\sqrt{2}$$

REF: 011024ia

13 ANS: 2

$$5\sqrt{7} + 3\sqrt{28} = 5\sqrt{7} + 3\sqrt{4} \sqrt{7} = 5\sqrt{7} + 6\sqrt{7} = 11\sqrt{7}$$

REF: 080524a

14 ANS:

$$7\sqrt{3}$$

REF: 089811al

15 ANS:

$$5\sqrt{5}$$

REF: 039413al

16 ANS:

$$6\sqrt{3}$$

REF: 099911al

17 ANS:

$$6\sqrt{3} \frac{3\sqrt{75} + \sqrt{27}}{3} = \frac{3\sqrt{25} \sqrt{3} + \sqrt{9} \sqrt{3}}{3} = \frac{15\sqrt{3} + 3\sqrt{3}}{3} = \frac{18\sqrt{3}}{3} = 6\sqrt{3}$$

REF: 061236ia

18 ANS:

$$5 - 2\sqrt{3} + \sqrt{9} \sqrt{3} + 2(3) = 5 - 2\sqrt{3} + 3\sqrt{3} + 6 = 11 + \sqrt{3}$$

REF: 061336ia

19 ANS:

$$-\sqrt{3}$$

REF: 010212siii

20 ANS:

$$\sqrt{3}$$

REF: 080107siii

21 ANS:

$$y\sqrt{3} - 4\sqrt{2} - 3y\sqrt{3} = -2y\sqrt{3} - 4\sqrt{2}$$

REF: 081436ia