

A.N.3: Operations with Radicals 2: Perform addition, subtraction, multiplication, and division

- 1 The expression $\sqrt{27} + \sqrt{12}$ is equivalent to
- 2 The sum of $\sqrt{75}$ and $\sqrt{3}$ is
- 3 The sum of $\sqrt{18}$ and $\sqrt{72}$ is
- 4 The sum of $\sqrt{27}$ and $\sqrt{108}$ is
- 5 What is the sum of $\sqrt{50}$ and $\sqrt{32}$?
- 6 The expression $\sqrt{28} + \sqrt{63}$ is equivalent to
- 7 What is the sum of $\sqrt{50}$ and $\sqrt{8}$?
- 8 What is $\sqrt{150} + \sqrt{24}$ expressed in simplest radical form?
- 9 What is $3\sqrt{2} + \sqrt{8}$ expressed in simplest radical form?
- 10 The expression $2\sqrt{50} - \sqrt{2}$ is equivalent to
- 11 The expression $\sqrt{72} - 3\sqrt{2}$ written in simplest radical form is
- 12 The expression $6\sqrt{50} + 6\sqrt{2}$ written in simplest radical form is
- 13 What is the sum of $5\sqrt{7}$ and $3\sqrt{28}$?
- 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:

$$5\sqrt{3}$$

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

REF: 069920a KEY: addition

2 ANS:

$$6\sqrt{3}$$

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

REF: 010311a KEY: addition

3 ANS:

$$9\sqrt{2}$$

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

REF: 060316a KEY: addition

4 ANS:

$$9\sqrt{3}$$

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

REF: 010912a KEY: addition

5 ANS:

$$9\sqrt{2}$$

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

REF: 080614a KEY: addition

6 ANS:

$$5\sqrt{7}$$

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

REF: 060724a KEY: addition

7 ANS:

$$7\sqrt{2}$$

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

REF: 080712a KEY: addition

8 ANS:

$$7\sqrt{6}$$

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

REF: 011517ia KEY: addition

9 ANS:

$$5\sqrt{2}$$

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

REF: 011121ia KEY: addition

10 ANS:

$$9\sqrt{2}$$

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

REF: 080016a KEY: subtraction

11 ANS:

$$3\sqrt{2}$$

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

REF: 061008ia KEY: subtraction

12 ANS:

$$36\sqrt{2}$$

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

REF: 011024ia KEY: addition

13 ANS:

$$11\sqrt{7}$$

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

REF: 080524a KEY: addition

14 ANS:

$$7\sqrt{3}$$

REF: 089811al KEY: addition

15 ANS:

$$5\sqrt{5}$$

REF: 039413al KEY: addition

16 ANS:

$$6\sqrt{3}$$

REF: 099911al KEY: addition | subtraction

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 KEY: addition

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 KEY: addition | subtraction

19 ANS:

$$-\sqrt{3}$$

REF: 010212siii KEY: addition | subtraction

20 ANS:

$$\sqrt{3}$$

REF: 080107siii KEY: subtraction

21 ANS:

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

REF: 081436ia KEY: subtraction