

**N.RN.B.3: Operations with Radicals 3**

- 1 What is the sum of  $3x\sqrt{7}$  and  $2x\sqrt{7}$ ?
  - 1)  $5x\sqrt{7}$
  - 2)  $5x^2\sqrt{7}$
  - 3)  $5x\sqrt{14}$
  - 4)  $5x^2\sqrt{14}$
- 2 The expression  $\sqrt{27} + \sqrt{12}$  is equivalent to
  - 1)  $5\sqrt{3}$
  - 2)  $13\sqrt{3}$
  - 3)  $5\sqrt{6}$
  - 4)  $\sqrt{39}$
- 3 The sum of  $\sqrt{75}$  and  $\sqrt{3}$  is
  - 1) 15
  - 2) 18
  - 3)  $6\sqrt{3}$
  - 4)  $\sqrt{78}$
- 4 The sum of  $\sqrt{18}$  and  $\sqrt{72}$  is
  - 1)  $\sqrt{90}$
  - 2)  $9\sqrt{2}$
  - 3)  $3\sqrt{10}$
  - 4)  $6\sqrt{3}$
- 5 The sum of  $\sqrt{27}$  and  $\sqrt{108}$  is
  - 1)  $\sqrt{135}$
  - 2)  $9\sqrt{3}$
  - 3)  $3\sqrt{3}$
  - 4)  $4\sqrt{27}$
- 6 What is the sum of  $\sqrt{50}$  and  $\sqrt{32}$ ?
  - 1)  $\sqrt{82}$
  - 2)  $20\sqrt{20}$
  - 3)  $9\sqrt{2}$
  - 4)  $\sqrt{2}$
- 7 The expression  $\sqrt{28} + \sqrt{63}$  is equivalent to
  - 1)  $\sqrt{91}$
  - 2)  $5\sqrt{7}$
  - 3)  $6\sqrt{7}$
  - 4)  $13\sqrt{7}$
- 8 What is the sum of  $\sqrt{50}$  and  $\sqrt{8}$ ?
  - 1)  $\sqrt{58}$
  - 2)  $7\sqrt{2}$
  - 3)  $9\sqrt{2}$
  - 4)  $29\sqrt{2}$
- 9 What is  $\sqrt{150} + \sqrt{24}$  expressed in simplest radical form?
  - 1)  $7\sqrt{6}$
  - 2)  $7\sqrt{12}$
  - 3)  $\sqrt{87}$
  - 4)  $\sqrt{174}$

- 10 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)  $7\sqrt{2}$
- 11 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)  $36\sqrt{2}$
- 12 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)  $8\sqrt{35}$
- 13 Simplify:  $\sqrt{48} + \sqrt{27}$
- 14 Simplify:  $\sqrt{45} + \sqrt{20}$
- 15 The expression  $\sqrt{28} - \sqrt{7}$  is equivalent to
- 1)  $\sqrt{7}$
  - 2) 2
  - 3)  $3\sqrt{7}$
  - 4) 4
- 16 The expression  $2\sqrt{50} - \sqrt{2}$  is equivalent to
- 1)  $2\sqrt{48}$
  - 2) 10
  - 3)  $9\sqrt{2}$
  - 4)  $49\sqrt{2}$
- 17 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)  $\sqrt{6}$
- 18 Simplify:  $\sqrt{48} + \sqrt{75} - \sqrt{27}$
- 19 Express  $\frac{3\sqrt{75} + \sqrt{27}}{3}$  in simplest radical form.
- 20 Express  $\sqrt{25} - 2\sqrt{3} + \sqrt{27} + 2\sqrt{9}$  in simplest radical form.
- 21 Express in simplest form:  $\sqrt{48} - 5\sqrt{27} + 2\sqrt{75}$
- 22 Express  $\frac{1}{2}\sqrt{48} - (2\sqrt{12} - \sqrt{27})$  in simplest radical form.

**N.RN.B.3: Operations with Radicals 3****Answer Section**

1 ANS: 1 REF: fall2301ai

2 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

3 ANS: 3

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

REF: 010311a

4 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

5 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

6 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

7 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

8 ANS: 2

$$\sqrt{50} + \sqrt{8} = \sqrt{25}\sqrt{2} + \sqrt{4}\sqrt{2} = 5\sqrt{2} + \sqrt{2} = 6\sqrt{2}$$

REF: 080712a

9 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

10 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

11 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

12 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

13 ANS:

$$7\sqrt{3}$$

REF: 089811a1

14 ANS:

$$5\sqrt{5}$$

REF: 039413a1

15 ANS: 1

$$\sqrt{28} - \sqrt{7} = \sqrt{4}\sqrt{7} - \sqrt{7} = 2\sqrt{7} - \sqrt{7} = \sqrt{7}$$

REF: 010826a

16 ANS: 3

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

REF: 080016a

17 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

18 ANS:

$$6\sqrt{3}$$

REF: 099911a1

19 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

20 ANS:

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

REF: 061336ia

21 ANS:

$$-\sqrt{3}$$

REF: 010212siii

22 ANS:

$$\sqrt{3}$$

REF: 080107siii