



Adding and Subtracting Radicals With Different Radicands

- Procedure:**
1. Take the n th root of each radical.
 2. Combine radicals with the same radicands.

Example:

Simplify $6\sqrt{2} + \sqrt{8}$.

$$\begin{aligned}6\sqrt{2} + \sqrt{8} &= 6\sqrt{2} + \sqrt{4 \times 2}, \\ &= 6\sqrt{2} + 2\sqrt{2}, \\ &= 8\sqrt{2}.\end{aligned}$$

Simplify the following.

1. $\sqrt{12} + 7\sqrt{3}$

2. $\sqrt{20} + \sqrt{45}$

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

4. $7\sqrt{125} - \sqrt{3} + \sqrt{5}$

5. $2\sqrt{162} - 3\sqrt{98}$

6. $-\sqrt{27} - \sqrt{300}$

7. $10\sqrt{3} + 6\sqrt{27}$

8. $7\sqrt{12} + \sqrt{75} + 4\sqrt{20}$

9. $3\sqrt{54} + 10\sqrt{60}$

10. $\sqrt{400} - 2\sqrt{9} + \sqrt{63}$

11. $6\sqrt{32} - 7\sqrt{40}$

12. $5\sqrt{44} + 6\sqrt{6} - 2\sqrt{11} + 9\sqrt{24}$