



This worksheet will help you to perform arithmetic operations with surds. You will work on addition, subtraction, multiplication and division of surds. Pay careful attention to combining like surds and simplifying expressions completely.

## Easy Questions

1. Calculate  $\sqrt{2} \times \sqrt{3}$  and simplify.
2. Simplify the expression  $\sqrt{8} \times \sqrt{2}$ .
3. Simplify  $3\sqrt{5} + 2\sqrt{5}$ .
4. Find the value of  $7\sqrt{7} - 3\sqrt{7}$ .
5. Simplify  $\frac{\sqrt{18}}{\sqrt{2}}$ .

## Intermediate Questions

11. Simplify and express in simplest form:  $4\sqrt{3} \times 2\sqrt{6}$ .
12. Expand and simplify  $2\sqrt{2}(3 + \sqrt{2})$ .
13. Simplify the expression  $5\sqrt{3} - 2\sqrt{5}$ .
14. Simplify  $3\sqrt{7} + 2\sqrt{7} - \sqrt{7}$ .
15. Simplify  $\sqrt{3} \times \sqrt{12}$ .
16. Simplify  $\frac{6\sqrt{2}}{\sqrt{8}}$ .
17. Simplify  $2\sqrt{5} + 3\sqrt{2} + 4\sqrt{5}$ .
18. Simplify  $5\sqrt{10} - 2(\sqrt{40})$ .
19. Expand  $(\sqrt{2} + \sqrt{3})(\sqrt{2} + \sqrt{3})$  and simplify.
20. Simplify  $\frac{10\sqrt{18}}{5\sqrt{2}}$ .
21. Simplify  $\sqrt{5}(2\sqrt{5} + 3)$ .

22. Simplify  $(3\sqrt{6})(2\sqrt{3})$ .
23. Simplify  $4\sqrt{50} - \sqrt{8}$ .
24. Simplify  $7\sqrt{2} + 3\sqrt{18} - 2\sqrt{8}$ .
25. Simplify  $(2\sqrt{3} + \sqrt{5}) - (\sqrt{12} - 2\sqrt{5})$ .

## Hard Questions

21. Simplify and express in simplest form:  $\frac{2\sqrt{18} \times 3\sqrt{8}}{\sqrt{2}}$ .
22. Simplify  $\frac{\sqrt{20} \times \sqrt{7}}{\sqrt{5}}$ .
23. Simplify  $\frac{3\sqrt{48} - 2\sqrt{27}}{\sqrt{3}}$ .
24. Simplify  $\sqrt{50}(\sqrt{2} - \sqrt{8})$ .
25. Simplify  $2\sqrt{12} + 3\sqrt{27} - \sqrt{48}$ .
26. Simplify  $(\sqrt{3} + \sqrt{2})^2$ .
27. Expand and simplify  $\sqrt{5}(\sqrt{20} - 3\sqrt{5})$ .
28. Simplify  $\frac{4\sqrt{8}}{2\sqrt{2}}$ .
29. Simplify  $(\sqrt{18} + \sqrt{8}) - (\sqrt{2} + \sqrt{50})$ .
30. Simplify  $\frac{2\sqrt{72} + \sqrt{98} - \sqrt{32}}{\sqrt{2}}$ .