

## Operations with Radicals Worksheet

**ADDING AND SUBTRACTING RADICALS** Simplify the expression.

- |  |   |                               |
|--|---|-------------------------------|
| 18. $5\sqrt{7} + 2\sqrt{7}$              | 19. $\sqrt{3} + 5\sqrt{3}$                | 20. $11\sqrt{3} - 12\sqrt{3}$ |
| 21. $2\sqrt{6} - \sqrt{6}$               | 22. $\sqrt{32} + \sqrt{2}$                | 23. $\sqrt{75} + \sqrt{3}$    |
| 24. $\sqrt{80} - \sqrt{45}$              | 25. $\sqrt{72} - \sqrt{18}$               | 26. $\sqrt{147} - 7\sqrt{3}$  |
| 27. $4\sqrt{5} + \sqrt{125} + \sqrt{45}$ | 28. $3\sqrt{11} + \sqrt{176} + \sqrt{11}$ |                               |
| 29. $\sqrt{24} - \sqrt{96} + \sqrt{6}$   | 30. $\sqrt{243} - \sqrt{75} + \sqrt{300}$ |                               |

**MULTIPLYING AND DIVIDING RADICALS** Simplify the expression.

- |                                      |                                    |   |
|--------------------------------------|------------------------------------|---|
| 31. $\sqrt{3} \cdot \sqrt{12}$       | 32. $\sqrt{5} \cdot \sqrt{8}$      | 33. $(1 + \sqrt{13})(1 - \sqrt{13})$    |
| 34. $\sqrt{3}(5\sqrt{2} + \sqrt{3})$ | 35. $\sqrt{6}(7\sqrt{3} + 6)$      | 36. $(\sqrt{6} + 5)^2$                  |
| 37. $(\sqrt{a} - b)^2$               | 38. $(\sqrt{c} + d)(3 + \sqrt{5})$ | 39. $(2\sqrt{3} - 5)^2$                 |
| 40. $\frac{5}{\sqrt{7}}$             | 41. $\frac{2}{\sqrt{2}}$           | 42. $\frac{9}{5 - \sqrt{7}}$            |
| 43. $\frac{3}{\sqrt{48}}$            | 44. $\frac{6}{10 + \sqrt{2}}$      | 45. $\frac{\sqrt{3}}{\sqrt{3} - 1}$     |
| 46. $\frac{14}{60 - \sqrt{578}}$     | 47. $\frac{12}{7 - \sqrt{3}}$      | 48. $\frac{4 + \sqrt{3}}{a - \sqrt{b}}$ |

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