

Name: \_\_\_\_\_ Date: \_\_\_\_\_

**Operations with Radicals**

Multiply:

1.  $\sqrt{18} \square \sqrt{5}$

2.  $\sqrt{12} \square 2\sqrt{6}$

3.  $3\sqrt{2} \square 5\sqrt{4}$

4.  $5\sqrt{2}(4 - \sqrt{3})$

5.  $\sqrt{3} \square \sqrt{12}$

6.  $\sqrt{5}(\sqrt{2} + 1)$

Add or Subtract:

1.  $4\sqrt{3} - 2\sqrt{3}$

2.  $\sqrt{32} + 2\sqrt{2}$

3.  $\sqrt{2} + 2\sqrt{3}$

4.  $\sqrt{5} + 4\sqrt{5}$

5.  $3x\sqrt{5} - 2x\sqrt{5}$

6.  $\sqrt{7x} + \sqrt{2} + 3\sqrt{7x}$

7.  $\sqrt{8y} - \sqrt{2y}$

8.  $\sqrt{18ab} + \sqrt{2ab}$

9.  $5y\sqrt{3} - \sqrt{12y^2}$

Simplify each expression.

1.  $\sqrt{8} + \sqrt{50}$

2.  $-\sqrt{12} + \sqrt{300}$

3.  $3\sqrt{20} + 8\sqrt{45}$

4.  $\sqrt{150} - 7\sqrt{24}$

5.  $-2\sqrt{90} - 5\sqrt{40}$

6.  $3\sqrt{98} - 6\sqrt{18}$

7.  $\sqrt{2a} - 15\sqrt{7} - 5\sqrt{2a} + 3\sqrt{7}$

8.  $-9\sqrt{x} + 4\sqrt{y} - 4\sqrt{x} + 2\sqrt{y}$

9.  $x\sqrt{27} + \sqrt{75x^2} + 2x\sqrt{12}$

10.  $x\sqrt{63} - x\sqrt{28} + x\sqrt{700}$

11.  $5\sqrt{8xy} + 9\sqrt{200xy} + \sqrt{32xy}$

12.  $-2\sqrt{54} + 7\sqrt{150} + 3\sqrt{144}$

13.  $-4a\sqrt{500} + 6a\sqrt{44} - a\sqrt{80}$

14.  $8\sqrt{12x} + \sqrt{300x} - 2\sqrt{27x}$

15.  $-10\sqrt{9x} + 3\sqrt{36x} - \sqrt{50x}$

16.  $5\sqrt{160x} + 12\sqrt{75x} - 4\sqrt{250x}$