

Name _____

Date _____

6-3 Binomial Radical

Add or subtract if possible.

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

2. $6\sqrt{2} - 5\sqrt[3]{2}$

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

Multiply.

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

5. $(3 + \sqrt{11})(4 - \sqrt{11})$

6. $(3\sqrt{2} - 2\sqrt{3})^2$

Multiply each pair of conjugates.

7. $(\sqrt{11} + 5)(\sqrt{11} - 5)$

8. $(2\sqrt{7} + 3\sqrt{3})(2\sqrt{7} - 3\sqrt{3})$

Rationalize each denominator. Simplify the answer.

9. $\frac{3 - \sqrt{10}}{\sqrt{5} - \sqrt{2}}$

10. $\frac{2 + \sqrt{14}}{\sqrt{7} + \sqrt{2}}$

11. $\frac{2 + \sqrt[3]{x}}{\sqrt[3]{x}}$

Simplify. Assume that all the variables are positive.

12. $\sqrt{28} + 4\sqrt{63} - 2\sqrt{7}$

13. $6\sqrt{40} - 2\sqrt{90} - 3\sqrt{160}$

14. $3\sqrt{12} + 7\sqrt{75} - \sqrt{54}$

15. $4\sqrt[3]{81} + 2\sqrt[3]{72} - 3\sqrt[3]{24}$