Algebra 2 Unit 6 Day 07 Operations with Radicals Notes & HW **Name**_____

Date_____**Block**_____

ADDING & SUBTRACTING Radicals

1. **SIMPLIFY** all radicals.
2. Identify radicals with the **SAME INDEX** and **SAME RADICAND**. Only these can be combined!
3. For common radicals, **add/subtract the coefficients** and **KEEP THE COMMON RADICAL**.

1. $3\sqrt{27}-2\sqrt{12}$

2. $3\sqrt[3]{54}-2\sqrt[3]{2}+7\sqrt[3]{-16}$

3. $7\sqrt[4]{48}-2\sqrt[4]{3}+3\sqrt[3]{72}$

4. $10\sqrt{28}+\sqrt[3]{-56}-4\sqrt{175}$

5. $\sqrt{98x^4y^2}-3x^2y\sqrt{2}$

6. $\sqrt[3]{-40a^7}+2a^2\cdot\sqrt[3]{135a^4}$

MULTIPLYING Radicals

1. Multiply coeefficients, then use **PRODUCT RULE**: $\sqrt[n]{a}\cdot\sqrt[n]{b}=$
2. **SIMPLIFY** the resulting radical.

7. $\sqrt{27}\cdot\sqrt{5}$

8. $3\sqrt{10}\cdot-2\sqrt{18}$

9. $2\sqrt[3]{9}\cdot5\sqrt[3]{-24}$

10. $-3\sqrt[4]{64}\cdot-\sqrt[4]{8}$

	11. $\sqrt{6x^4} \cdot 5\sqrt{8x^5}$	**12.** $\sqrt[3]{54m^8} \cdot \sqrt[3]{5m^4}$
	13. $\sqrt[3]{-3a^7b^4} \cdot \sqrt[3]{36a^6b^2}$	**14.** $2\sqrt[4]{p^2q} \cdot 7\sqrt[4]{p^3q^{10}}$

15-26: Simplify each expression. Leave all answers in simplest radical form. NO DECIMAL ANSWERS.		
15. $2\sqrt[3]{3} + \sqrt[3]{3}$	**16.** $5\sqrt{7} - 9\sqrt{7}$	**17.** $4\sqrt{2} - \sqrt{8}$
18. $\sqrt{18} + 2\sqrt{50}$	**19.** $\sqrt[3]{40} + \sqrt[3]{5}$	**20.** $4\sqrt[3]{54} - 2\sqrt[3]{16}$
21. $\sqrt{7} \cdot \sqrt{3}$	**22.** $\sqrt{6} \cdot \sqrt{3}$	**23.** $\sqrt[3]{2} \cdot \sqrt[3]{4}$
24. $\sqrt[3]{9} \cdot \sqrt[3]{6}$	**25.** $2\sqrt[3]{4} \cdot \sqrt[3]{16}$	**26.** $\left(2\sqrt{32}\right)\left(-3\sqrt{24}\right)$