Algebra 2
Properties of Rational Exponents (day 3)

Name: _____
Date: _____

Property Name	Property	Property Name	Property
Product of Powers	$a^b \cdot a^c = a^{b+c}$	Zero Exponent	$a^0 = 1$
Power of a Power	$(a^b)^c = a^{bc}$	Quotient of Powers	$\frac{a^b}{a^c} = a^{b-c}$
Power of a Product	$(ab)^c = a^b b^c$	Power of a Quotient	$\left(\frac{a}{b}\right)^c = \frac{a^c}{b^c}$
Negative Exponent: reciprocal	$a^{-b} = \frac{1}{a^b}$	Product Property	$\sqrt[c]{a} \cdot \sqrt[c]{b} = \sqrt[c]{ab}$
Negative Exponent: reciprocal	$a^b = \frac{1}{a^{-b}}$	Quotient Property	$\sqrt[c]{\frac{a}{b}} = \frac{\sqrt[c]{a}}{\sqrt[c]{b}}$

Simplify the expressions.

1. $8\sqrt[6]{5} - 12\sqrt[6]{5}$	2. $9\sqrt[3]{11} + 3\sqrt[3]{11}$
3. $3\left(11^{\frac{1}{4}}\right) + 9\left(11^{\frac{1}{4}}\right)$	4. $13\left(8^{\frac{3}{4}}\right) - 4\left(8^{\frac{3}{4}}\right)$

5. $5\sqrt{12} - 19\sqrt{3}$	6. $27\sqrt{6} + 7\sqrt{150}$
7. $\sqrt[5]{224} + 3\sqrt[5]{7}$	8. $7\sqrt[3]{2} - \sqrt[3]{128}$
9. $5\left(24^{\frac{1}{3}}\right) - 4\left(3^{\frac{1}{3}}\right)$	10. $\left(5^{\frac{1}{4}}\right) + 6\left(405^{\frac{1}{4}}\right)$
11. $\sqrt[3]{64r^3t^6}$	12. $\sqrt[4]{81y^8}$
13. $\sqrt[5]{\frac{m^{10}}{n^5}}$	14. $\sqrt[4]{\frac{k^{16}}{16z^4}}$