

Property Name	Property	Example	Example
Product of Powers	$a^b \cdot a^c = a^{b+c}$	a. $5^{\frac{1}{2}} \cdot 5^{\frac{3}{2}} =$	b. $7^{\frac{1}{4}} \cdot 7^{\frac{1}{2}} =$
Power of a Power	$(a^b)^c = a^{bc}$	a. $(3^{\frac{5}{2}})^2$	b. $(8^{\frac{1}{2}})^{\frac{2}{3}}$
Power of a Product	$(ab)^c = a^b b^c$	a. $(16 \cdot 9)^{\frac{1}{2}}$	b. $(6^{\frac{1}{2}} \cdot 4^{\frac{1}{3}})^2$
Negative Exponent: reciprocal	$a^{-b} = \frac{1}{a^b}$	a. $36^{-\frac{1}{2}}$	b. $(4^5 \cdot 3^5)^{-\frac{1}{5}}$
Zero Exponent	$a^0 = 1$	a. 213^0	b. $7^{\frac{1}{2}} \cdot 7^{-\frac{1}{2}}$
Quotient of Powers	$\frac{a^b}{a^c} = a^{b-c}$	a. $\frac{4^{\frac{5}{2}}}{4^{\frac{1}{2}}}$	b. $\frac{5}{5^{\frac{1}{3}}}$
Power of a Quotient	$(\frac{a}{b})^c = \frac{a^c}{b^c}$	a. $(\frac{27}{64})^{\frac{1}{3}}$	b. $(\frac{42^{\frac{1}{3}}}{6^{\frac{1}{3}}})^2$

Algebra 2
Properties of Rational Exponents (A)

Name: _____
Date: _____

You may use a calculator to help with the fractions.

1. $(9^2)^{\frac{1}{3}}$	2. $(12^2)^{\frac{1}{4}}$
3. $\frac{6}{\frac{1}{6^4}}$	4. $\frac{7}{\frac{1}{7^3}}$
5. $\left(\frac{8^4}{10^4}\right)^{-\frac{1}{4}}$	6. $\left(\frac{9^3}{6^3}\right)^{-\frac{1}{3}}$
7. $\left(3^{-\frac{2}{3}} \cdot 3^{\frac{1}{3}}\right)^{-1}$	8. $\left(5^{\frac{1}{2}} \cdot 5^{-\frac{3}{2}}\right)^{-\frac{1}{4}}$
9. $\frac{\frac{2}{2^{\frac{2}{3}}} \cdot \frac{2}{16^{\frac{2}{3}}}}{\frac{2}{4^{\frac{2}{3}}}}$	10. $\frac{\frac{3}{49^{\frac{3}{8}}} \cdot \frac{7}{49^{\frac{7}{8}}}}{\frac{5}{7^4}}$