Exponent Rule Review

Review of Rules for Rational Exponents

Product rule	$a^m a^n = a^{m+n}$
Quotient rule	$a^m \div a^n = \frac{a^m}{a^n} = a^{m-n}, a \neq 0$
Power of a power rule	$(a^m)^n = a^{mn}$
Power of a product rule	$(ab)^n = a^n b^n$
Power of a quotient rule	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}, b \neq 0$
Negative exponents rule	$a^{-n} = \frac{1}{a^n}, a \neq 0$

The rules for rational exponents follow the rules for integer exponents.

TRY:

Use the rules to evaluate the following. All numbers should be simplified. Do not leave any answers with radical signs. Be sure all exponents are positive.

$y^{1/3}y^{1/3}$ $\quad 2^{1/2}2^{1/3}$ $\quad 5^{1/4}5^{-1/4}$ $\quad (a^{1/2}b^{-1/3})(ab)$

$(3^{10})^{1/5}$ $\quad (125a^8)^{1/3}$ $\quad \left(\frac{2a^{1/2}}{b^{1/3}}\right)^6$ $\quad (-27x^9)^{1/3}$

$\left(\frac{a^{-1/2}}{3a^{2/3}}\right)^{-3}$ $\quad (tv^{1/3})^2(t^2v^{-3})^{-1/2}$