

Name: _____

Date: _____

Learning Goal 5.3

Apply order of operations to radical expressions.

Recall the exponent laws for integer bases and whole number exponents.

Product of Powers	$a^m \cdot a^n =$	
Quotient of Powers	$a^m \div a^n =$	
Power of a Power	$(a^m)^n =$	
Power of a Product	$(ab)^m =$	
Power of a Quotient	$\left(\frac{a}{b}\right)^m =$	

These all work the same way as they did last year, we can just use them with

_____ and _____

exponents now!

Example Simplify by writing as a single power. Do not evaluate. Remember your order of operations!

a.

$$\frac{(1.5^{-3})^{-5}}{1.5^5}$$

b.

$$\frac{9^{5/4} \cdot 9^{-1/4}}{9^{3/4}}$$

A good first step if you're feeling overwhelmed: change the expression so all the exponents are positive.

c.
$$\left[\left(\frac{3}{2}\right)^2\right]^{-3} \div \left[\left(\frac{3}{2}\right)^{-5}\right]^4$$

d.
$$\left(\frac{7^{2/3}}{7^{1/3} \cdot 7^{5/3}}\right)^6$$

e.
$$m^4n^{-2} \times m^2n^3$$

f.
$$\frac{6x^4y^{-3}}{14xy^2}$$

g.
$$(8a^3b^{-6})^{-1/3}$$

h.
$$\left(\frac{100a}{25a^5b^{-1/2}}\right)^{1/2}$$

i.
$$(x^{3/2}y^2)(x^{1/2}y^{-1})$$

j.
$$\frac{4a^{-2}b^{2/3}}{2a^{2/3}b^{1/3}}$$