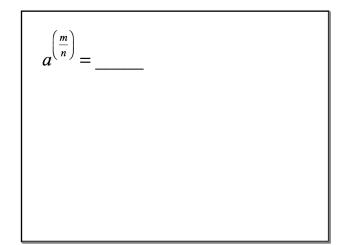
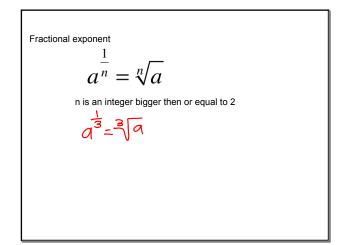
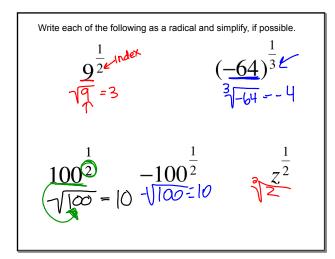


1, 8, 27, 64, 125, 216  $a^{\left(\frac{2}{3}\right)} =$ \_\_\_\_\_

1, 16, 81, 256, 625, 1296  
$$a^{\left(\frac{3}{4}\right)} = \_$$

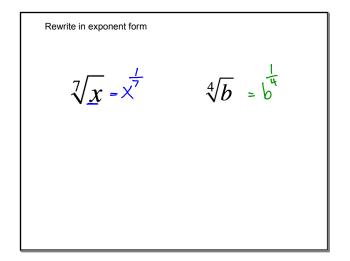






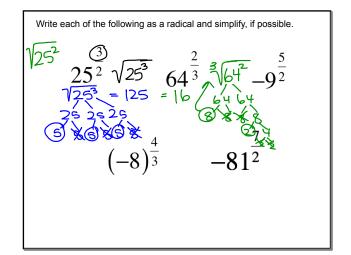
You try  

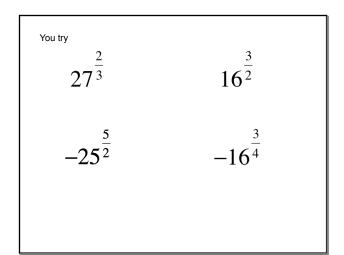
$$25^{\frac{1}{2}}$$
  $(-27)^{\frac{1}{3}}$   
 $-64^{\frac{1}{2}}$   $b^{\frac{1}{2}}$ 



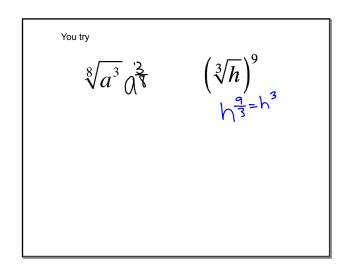
You try		
$\sqrt[12]{r}$	$\sqrt[5]{d}$	

m index  $= \left(\sqrt[n]{a}\right)^m$  $\sqrt[n]{a^m}$ а Radicand *a* is real, m/n is a rational number in lowest terms with *n* bigger or equal to 2

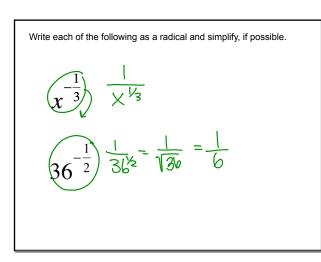




Rewrite in exponent form	
$\sqrt[3]{x^2}$ $x^{\frac{2}{3}}$	$\left(\sqrt[4]{r}\right)^2 r^{\frac{2}{\gamma}}$



$$a = \frac{1}{a^{\frac{m}{n}}} \text{ and } \left( \frac{1}{a^{\frac{m}{n}}} = a^{\frac{m}{n}} \right)$$
$$\frac{m}{n} \text{ is a rational number, and } a \text{ is a nonzero real number}$$



Exponent Rules  

$$a^{0} = 1 \quad \text{if } a \neq 0$$

$$a^{-n} = \frac{1}{a^{n}} \quad \text{or} \quad \frac{1}{a^{-n}} = a^{n} \quad \text{if } a \neq 0$$

$$a^{m} \cdot a^{n} = a^{m+n}$$

$$\frac{a^{m}}{a^{n}} = a^{m-n} \quad \text{if } a \neq 0$$

$$(a^{m})^{n} = a^{m \cdot n}$$

$$(a \cdot b)^{n} = a^{n} \cdot b^{n}$$

$$\left(\frac{a}{b}\right)^{n} = \frac{a^{n}}{b^{n}} \quad \text{if } b \neq 0$$

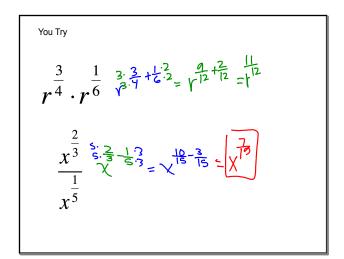
$$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^{n} \quad \text{if } a \neq 0, \ b \neq 0$$

After you simplify you should have:

- Only positive exponents.
- Each base only occurring once.
- Have no parentheses in the expression.
- No powers written to powers.

Simplify using properties of exponents. Leave answers with rational exponents

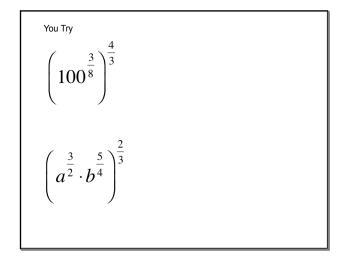
$$\frac{1}{x^{2}} \cdot x^{\frac{1}{3}} = x^{\frac{1}{2} + \frac{1}{3}} = x^{\frac{3}{2} + \frac{2}{5}} = x^{5/5}$$
$$\frac{x^{\frac{1}{3}}}{\frac{5}{3}} \times x^{\frac{1}{3} - \frac{5}{3}} = x^{\frac{4}{3}} \cdot \frac{1}{x^{4/3}}$$

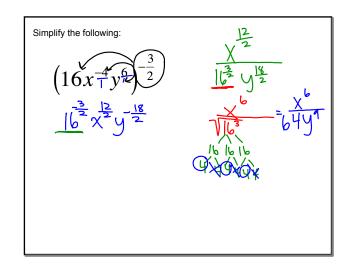


Simplify each of the following:  

$$\begin{pmatrix} \frac{2}{x^5} \end{pmatrix}^{\frac{5}{4}} = \chi^{\frac{10}{20}} = \chi^{\frac{1}{2}}$$

$$\begin{pmatrix} \frac{1}{x^2} \cdot y^{\frac{3}{2}} \end{pmatrix}^{\frac{3}{2}} \chi^{\frac{3}{4}} y^{\frac{5}{2}} = \chi^{\frac{3}{4}} y$$





Use rational exponents to simplify the radicals.  $\frac{\sqrt{x}}{\sqrt[3]{x^2}}$  $\sqrt[3]{z}$ 

