

**MCR3U****Cycle 3 Day 2 - Simplifying Expressions with Rational Exponents**

- Follow the exponent laws (multiplying, dividing, power of a power, negative) and order of operations (BEDMAS)
- Express all answers using positive exponents
- Express answers in radical form

**Example:** Simplify. Express in rational form with positive exponents

a.  $\frac{(2x^{-3}y^2)^3}{(x^3y^{-4})^2}$

b.  $\frac{(x^{2n+1})(x^{3n-1})}{x^{2n-5}}$

c.  $\frac{\sqrt[3]{27a^{-3}b^{12}}}{\sqrt{16a^{-8}b^{12}}}$

d.  $\left(\frac{\sqrt[5]{x^8}}{\sqrt{x^3}}\right)^3$

e.  $\frac{\sqrt[3]{x^4}\sqrt{x^{-5}}}{\sqrt[4]{x^{-5}}}$

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Ex. Simplify each of the following.

1.  $x^2 \div x^{\frac{4}{3}}$

2.  $(27y^9)^{\frac{-2}{3}}$

3.  $(-a^2b)^4 \left( \frac{16a^4}{b} \right)^{\frac{1}{2}}$

4.  $\sqrt[3]{x^{12}}$

5.  $\left( y^{\frac{3}{4}} \right)^4 \div \left( 25y^8 \right)^{\frac{-1}{2}}$

6.  $\frac{(3x)^{-2}}{2(x^{-3})^{-1}}$