

EXPONENTS: Introduction and Summary

 **2001** Watch video and complete examples

Lesson Notes and Examples:

Applying the 4 laws

Example 1

$$(8a^{-3}b^{12})^{-\frac{2}{3}}$$

Example 2

$$\sqrt{16x^{-4}} \cdot \sqrt[3]{27x^6}$$

Example 3

$$\sqrt[4]{81} - \sqrt{\left(\frac{81}{4}\right)^{-1}}$$

Example 4

$$\left(\frac{x^{-2}}{2y^0}\right)^{-3} \times \sqrt[3]{x^9}$$

Example 5

$$\frac{8^x \cdot 4^{x+1}}{2^{5x+3}}$$

Variable as exponent: Contain Addition and Subtraction of terms.

Example 1

$$\frac{3^x - 3^{x-1}}{3^x + 3^{x+2}}$$

Example 2

$$\frac{3 \cdot 2^n - 2^{n-2}}{2^{n+1}}$$

Example 3

$$\frac{3 \cdot 9^{x+1} + 2 \cdot 3^{2x+1}}{4 \cdot 3^{2x+1} - 3 \cdot 9^x}$$

Example 4

$$\frac{24 \cdot 2^{n-3} - 10 \cdot 2^{n-1}}{2^n - 3 \cdot 2^{n+1}}$$

Example 5

$$\frac{2 \cdot 5^{2a-1} + 5^{2a+1}}{3 \cdot 25^a}$$

Variable as exponent: Contain Multiplication of terms.

Example 1

$$\frac{8^x \cdot 9^{1-x} \cdot 6^{x-3}}{16^{x-1} \cdot 3^{-x}}$$

Example 2

$$\frac{3^{2n} \cdot 81^{n-1} \cdot 27^{-4n}}{3^{1-6n}}$$

Example 3

$$\frac{10^{4x-1} \cdot 8^{1-2x}}{4^{2+x} \cdot 16^{1-x} \cdot 25^{2x}}$$

Example 4

$$\frac{6^{2x} \cdot 4^{\frac{x}{2}+1} \cdot 3}{4^x \cdot 9^{x+1} \cdot 2^{x-1}}$$

Problem Solving questions

Example 1

$$\frac{6^{2010} \times 10^{2011}}{4^{2010} \times 15^{2009}}$$

Example 2

$$\frac{(a - a^{-1})^2 \cdot (a - 1)^{-1}}{a^{-2} + 2a^{-1} + 1^{-1}}$$